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BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

ONE HUNDRED FOURTH CONGRESS

FIRST SESSION

MAY 11, 1995

Printed for the use of the Committee on Armed Services

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91–321 CC WASHINGTON : 1996

For sale by the U.S. Government Printing Office
Superintendent of Documents, Congressional Sales Office, Washington, DC 20402
ISBN 0-16-052208-0

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NATIONAL SECURITY IMPLICATIONS OF LOWERED EXPORT CONTROLS ON DUAL–USE TECHNOLOGIES AND U.S. DEFENSE CAPABILITIES

THURSDAY, MAY 11, 1995

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The committee met, pursuant to notice, at 9:35 a.m. in room SR–222, Russell Senate Office Building, Senator Robert C. Smith presiding.

Committee members present: Senators Smith, Thurmond, Lott, Nunn, and Bingaman.

Committee staff members present: Richard L. Reynard, staff director; and George W. Lauffer, deputy staff director.

Professional staff members present: Lucia M. Chavez and Jonathan L. Etherton.

Minority staff members present: Richard E. Combs, Jr., John W. Douglass, and Creighton Greene, professional staff members.

Staff assistants present: Kathleen M. Paralusz, Connie B. Rader, and Deasy Wagner.

Committee members' assistants present: Thomas L. Lankford, assistant to Senator Smith; Judith A. Ansley, assistant to Senator Warner; Richard W. Fieldhouse, assistant to Senator Levin; Edward McGaffigan, Jr., assistant to Senator Bingaman; Patricia J. Buckheit and Randy J. Rydell, assistants to Senator Glenn; William Owens, assistant to Senator Robb; and Randall A. Schieber, assistant to Senator Bryan.

OPENING STATEMENT OF SENATOR ROBERT C. SMITH, PRESIDING

Senator SMITH. The committee will come to order. The Committee meets this morning in full committee to discuss national security implications of export controls. Senator Thurmond has asked me to chair the full committee this morning because it is in the jurisdiction of the Subcommittee on Acquisition and Technology.

We meet this morning to receive testimony on the national security implications of lowered export and licensing controls on dual-use technology and items which could contribute to the proliferation of weapons of mass destruction.

Many Members of the committee are very concerned about the impact of lowering export controls on U.S. defense capabilities, as well as the impact on the U.S. industrial base. The export of these

technologies very well could undermine U.S. national security interests and the technical advantage of U.S. companies in the international market.

U.S. forces are increasingly dependent on space for communications, remote sensing, and navigation, and it is becoming extremely important for the United States to be in a position to protect its military assets, especially military assets in space. With U.S. military procurement efforts geared toward commercial, off-the-shelf technologies and administration decisions to export these technologies, the committee is very concerned about the Department's ability to be able to maintain effective, secure use of these technologies in the event of a conflict in the future.

The committee is also very concerned about how much influence the United States may have with its allies to ensure that they do not export these technologies which could contribute to the proliferation of weapons of mass destruction, or frankly, any weapons which could be used against U.S. forces.

The witnesses this morning have been asked to discuss the Department of Defense's role in identifying critical military technologies which could contribute to the proliferation of weapons of mass destruction and advanced weapons capabilities, and the effectiveness of administration policy and mechanisms to ensure that exports of significant technology, materials and technical data to potential adversaries is denied, and U.S. defense capabilities to counter the threat posed by the proliferation of foreign satellites and advanced conventional weapons.

Before turning to Senator Bingaman to see if he has any opening remarks, I want to just introduce the witnesses this morning. They will be Dr. Mitchel Wallerstein, Deputy Assistant Secretary of Defense for Counterproliferation, Mr. Al Volkman, Director of Armaments Cooperation, Mr. David Cooper, Director, Acquisition Policy, Technology and Competitiveness Group of the General Accounting Office, and Dr. Zachary Davis, Analyst, International Nuclear Policy, Congressional Research Service of the Library of Congress. Welcome to you all, gentlemen.

Senator Bingaman, do you have any opening statement?

I would just indicate to the witnesses, as is normal policy, please try to summarize your statements in about 5 minutes if you can, so that we can proceed to the questions. Your full statements, of course, are part of the official record. Mr. Wallerstein, why do we not start with you?

STATEMENT OF DR. MITCHEL B. WALLERSTEIN, DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR COUNTERPROLIFERATION POLICY; ACCOMPANIED BY CRAIG WILSON, DIRECTOR OF INTELLIGENCE POLICY, OFFICE OF THE SECRETARY OF DEFENSE

Dr. WALLERSTEIN. Thank you, Mr. Chairman. I appreciate the opportunity to appear before you today on this subject, which is one which certainly concerns both the legislative and executive branches of government.

Let me state at the outset that the Department of Defense believes that export controls continue to be a very important tool of U.S. national security policy, but three factors have required that

we make adjustments in these controls and how we approach controls.

First, of course, is the end of the Cold War. Our export controls for the entire Cold War period were focused on a monolithic adversary where we knew the methods and the channels through which technology was sought, and we were extremely effective in preventing that adversary from obtaining the technology. But we now face a much more diffuse security situation today, and we have had to adjust our controls accordingly.

Second, the global diffusion of technology; technology is now available worldwide at increasingly sophisticated levels, much of it beyond the control of the United States acting alone, and even in some cases acting in concert with friends and allies.

And third, growing indigenous capability, an issue closely related to the second. Many countries that we are now concerned about from a proliferation standpoint have a growing cadre of highly trained individuals, many of them unfortunately educated in the West, who are able to contribute significantly to the development of systems, military systems that we consider threatening.

All of these factors must be taken into account in adjusting our policy.

Moreover, we ourselves face a changed economic environment. Trade represents an increasing percentage of U.S. gross domestic product, so we ourselves must be competitive internationally and must be sure that the controls that we are imposing are reasonable and are enforceable.

Despite all these changes, however, we continue to believe that well-focused and fully multilateral export controls are both relevant and necessary.

In this administration, we have established in the Department of Defense the Counterproliferation Initiative as a major new thrust of national security policy. Our approach to proliferation involves two major elements, prevention and protection. Prevention is predominantly the diplomacy of nonproliferation, working with our allies to formulate new regimes and new approaches to control and prevent the proliferation of these dangerous technologies. A major element of the prevention side of this equation is export controls.

The other element of the counterproliferation initiative is protection. These are the steps that we have taken, and are taking, to make sure that our forces are properly equipped and trained and that appropriate planning is done so that if we do face an adversary threatening the use of weapons of mass destruction, we will not be deterred from accomplishing our objective. Prevention and protection are the two parts of the equation, and export controls are a central element of the prevention side.

Although we are not a licensing agency, our export control policy has two main objectives. First, we want to stop, or at least retard, the flow of technology that is obviously not in our national security interests. Second, we want to monitor legitimate technology flows that need to be tracked in order to ensure against their diversion. This monitoring also allows us to know what militarily related technology our forces may face in any particular contingency in a given region.

As you pointed out, Mr. Chairman, the Department of Defense is increasingly using commercial, dual-use technologies in our acquisition and research and development efforts. This allows us to take advantage of the strength of the entire U.S. economy and to gain significant cost savings and procurement cycle time reductions. But this trend also makes export controls on key dual-use items especially important for protecting our military advantages. We agree with your assertion on that point.

We decide on controls on dual use technologies based on the item's actual use in military systems, so each item must be judged on a case-by-case basis. We do this because the same dual-use good may be used by others to strengthen military systems that could threaten us even though, in our case, the application may be used largely for commercial purposes.

It is important to emphasize that we are not and should not be controlling technologies just for the sake of control. The growing pace of technological change and the growing diffusion of technology mean that there inevitably will be increased foreign availability of roughly comparable technology, and in many cases we have had to recognize that some of these items are simply diffused to such a large degree that they have become, in effect, commodities. They are bought and sold in huge numbers, and can no longer be controlled.

To minimize foreign availability, we work with the Department of State and with other agencies of the government to press our allies and our friends also to control dual-use technologies, and this effort has met with substantial success.

Let me give you one example. In the Gulf war, U.S. forces and coalition forces had to face the threat of Scud missile attacks. The Scud missile is a World War II vintage, liquid-fueled missile. Fortunately, we did not have to face the Condor missile, which was under development by the Iraqis and certain other governments. The reason we did not have to face that missile is because of the success of the Missile Technology Control Regime in preventing the Condor missile. So, we have had some substantial success on a number of fronts in preventing further development of these dangerous systems.

Our most important current initiative is to control appropriate dual-use technologies under the negotiation for the successor regime to COCOM. The Department of Defense is making major contributions to the U.S. Government effort to establish this new regime. When it is established, it will coordinate the policies of member governments to prevent militarily useful exports to states of proliferation concern, particularly Iran, Iraq, Libya, and North Korea.

The regime is to have two pillars, an arms pillar and a sensitive dual-use technologies pillar. Member States will make their own decisions on licensing without sending cases to a central clearinghouse, as was the case in the old COCOM. But they will establish a common policy framework for review of items on agreed control lists.

The Department of Defense has been pressing hard for a new regime that involves serious information exchange and scope for consultation. We think this is the key to success in this new age. This

regime will be a natural complement to existing regimes that are concerned with nonproliferation, which include the Missile Technology Control Regime, the Chemical Weapons Convention (when it enters into force), the Biological Weapons Convention, the Australia Group, and the Nuclear Suppliers Group.

My office works closely with Acquisition and Technology, with the Joint Staff, the military services, and intelligence and enforcement communities in reviewing licenses and updating the control lists for all of these multilateral control regimes. We follow specific U.S. Government-wide procedures to ensure that the increased use of dual-use technologies does not weaken our military posture.

In sum, Mr. Chairman, in the new post-Cold War world, the Department of Defense is giving strong emphasis to preventing the proliferation of dangerous military capabilities and to ensuring that the United States will be able to prevail militarily if it must encounter hostile States in possession of weapons of mass destruction, and our export control policies are designed to help us achieve this objective.

This concludes my oral statement, and I will be pleased to answer any questions that you and Mr. Bingaman may have.

[The prepared statement of Mr. Wallerstein follows:]

PREPARED STATEMENT BY DR. MITCHEL B. WALLERSTEIN, DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR COUNTERPROLIFERATION POLICY

Thank you, Mr. Chairman, for the opportunity to testify on the topic of export controls and their impact on defense and national security. This is a subject of major concern to my office, Counterproliferation Policy, as well as to other offices in OSD and the Department of Defense.

The Department of Defense believes that export controls continue to be a very important tool of national security policy. However, we have had to make adjustments in the scope and focus of our controls because we face a new situation with the end of the Cold War and growing technology diffusion worldwide. There are new indigenous capabilities outside the United States and increased economic pressures throughout the industrial world to increase exports. Despite these fundamental changes, well focused and fully multilateral export controls continue to be both relevant and necessary.

In this administration, the the Department of Defense has established the Counterproliferation Initiative as a major thrust of national security policy in recognition of the fact that the end of the Cold War has increased the risk of the proliferation of nuclear, biological, and chemical weapons—sometimes referred to collectively as weapons of mass destruction (WMD). These weapons are no longer a hypothetical threat in regional conflicts. Programs to develop or acquire WMD and their delivery systems are widespread around the world. Almost anywhere the United States is likely to deploy forces, states may possess such weapons or be near enough to obtaining them that we would have to assume their presence. For the the Department of Defense to fulfill its responsibilities in this new era and to reshape our forces for the new world, we must take seriously the WMD threat in future conflicts. The United States must be able to deter, and if necessary prevail with conventional forces, even if a regional aggressor threatens or uses WMD. The United States also must be prepared to counter the use of advanced conventional weapons that may be obtained by hostile states.

This is the purpose of the Counterproliferation Initiative. Indeed, in our concept, counterproliferation encompasses prevention plus protection, and export controls play a central role in the prevention part of this equation. Therefore, our export control policies have also been modified to move away from the Cold War policies to a greater emphasis on preventing the proliferation of WMD.

Our export control policy has two objectives. First, we want to stop the transfer to potential adversaries or combatants of technology that is not in our national security and defense interests. Second, we want to monitor technology flows that are acceptable in themselves but that need to be tracked to prevent diversion and to insure that we know what military-related technologies our forces would face in any given region.

As you know, the United States controls the export of both munitions and dual-use goods and technologies. This committee has shown a particular interest in the impact of our acquisition strategy on dual-use export controls. In this regard, this administration is committed to the increased use of dual-use technology to support our military capability as well as our economic strength. As Secretary Perry stated in this year's annual report, the Department of Defense "increasingly must rely on commercial or dual-use technologies, products, and processes . . . and will develop military-unique capabilities only after it has determined that commercial capabilities will not meet its requirements."

DOD is charting a new course in defense acquisition, research and development by taking greater advantage of the strength of the entire U.S. economy. The increased use of dual-use technology has the potential for significant cost savings and procurement production cycle time reductions. At the same time, these efforts help the private sector to bolster technologies that have commercial applications, with economic benefits for individual firms and for the industrial base as a whole.

We are working closely with our allies to implement an export control system that is adaptable and effective as we seek to ensure that sensitive dual-use technologies that have critical military applications are not exported or diverted to potential adversaries. We believe that effective export controls are a natural complement to our efforts to develop and field military forces second to none.

Export controls on key dual-use items are especially important for protecting our military advantages. When we evaluate the need for export controls, we are guided by how an item or technology is used in U.S. military systems, and this is how we define those items that are critical to military capabilities. The same dual-use goods that we use in our systems may be used by others to produce, upgrade and deploy systems that could threaten us in a variety of ways. Moreover, because these items are dual-use, their acquisition for military purposes may not be readily detectable, and a country seeking to build up its military capabilities may acquire dual-use goods from a variety of sources for ostensibly civilian purposes without arousing international suspicions. Even where a particular dual-use technology is not used in a U.S. military system, it could impart a capability that would significantly increase the threat to U.S. or allied/friendly forces in areas critical to U.S. security interests.

At the same time, however, it is important to recognize that we should not control for control's sake. Our controls must be effective to be worth the costs. Moreover, with the increasing pace of technological change and the growing diffusion of technology (especially in our information age), there will inevitably be increased foreign availability. Part of our strategy is to seek effective multilateral agreements where joint action can address a vulnerability, but we have to recognize that when technology becomes so widely available and standardized that it is traded over the counter like a commodity, controls are less effective and they can quickly become unworkable and counterproductive. This situation requires that we be careful not to put U.S. exporters at an unnecessary competitive disadvantage, particularly when export revenues are an important contribution to profitability and to financing defense-related R&D.

These technological and market developments along with the end of the Cold War have required that we reorient our export controls, particularly on dual-use technologies. For example, the administration modified export controls on computers in 1993 taking full account of assessments by the Joint Staff and other the Department of Defense components that considered fully the national security implications of the change and determined that U.S. security interests would not be effected unacceptably. We found that the dissolution of the Soviet Union and the Warsaw Pact, rapid advances in computer technology and widespread production and use of computers in personal and/or civil applications had rendered then existing controls obsolete. Thus we decided to focus controls on higher performance level computers. In this way, by controlling less, we could control more effectively, protecting military advantages and not acting as a drag on our own industry.

In order to minimize the effect of foreign availability, the Department of Defense works actively with other agencies to press our allies and friends to control dual-use technologies. We are playing a lead role in the U.S. Government's current effort to establish a successor regime to COCOM. This new regime will coordinate member government policies to prevent militarily useful exports to pariah states—such as Iran, Iraq, Libya and North Korea. It also will promote greater responsibility in the transfer of armaments and sensitive dual-use technologies to regions of concern such as the Middle East and South Asia (India/Pakistan). the Department of Defense officials participate regularly in the multinational meetings that are working to develop the procedures and control lists for the new regime.

DOD has been pressing hard for a COCOM successor regime that involves a serious information exchange and scope for consultation. The regime is to have two pillars: arms and sensitive dual-use technologies. Member countries will do their own licensing without sending cases to a central clearinghouse, but they will establish a policy framework for review of items on agreed control lists. Information exchange will be essential to ensure that national policies are being implemented consistently within the agreed framework. The administration will continue to press for a credible regime that will include all appropriate nations that meet the basic membership criteria, and will advance our mutual security interests as well as security in regions of proliferation concern.

This COCOM Successor regime by its focus on general dual-use technology and conventional arms will complement the existing control regimes that are concerned with nonproliferation. These include the Missile Technology Control Regime, the Chemical Weapons Convention and Biological Weapons Convention, the Australia Group, and the Nuclear Suppliers Group. Overall, the Department of Defense's export control efforts are under the purview of the Under Secretary of Defense for Policy. I am responsible for direct oversight of this program, which is managed on a day-to-day basis by the Defense Technology Security Administration (DTSA). Much of our policy relies on a case-by-case approach, because each export transaction has unique features and circumstances. Two activities define most of this process: license reviews and list updating.

My office works closely, in this regard, with the Office of the Under Secretary of Defense for Acquisition, the Joint Staff, the military services, and the intelligence and enforcement communities to review licenses referred by State and Commerce. We also work closely with our interagency colleagues to review and update export control lists. There are specific government-wide procedures to ensure that the increased use of dual-use technologies does not weaken our military posture. Representatives from Defense (including the Joint Staff), Commerce, State, Energy, the intelligence community and other interested executive agencies and industry develop and recommend proposals for changes to control lists. These proposals are made to an interagency policy group charged with coordinating interagency positions on export control changes. Working groups evaluate current control lists, emerging dual-use technologies, and their criticality to weapons systems and related technology. Agency disagreements are resolved through an established interagency dispute resolution process.

DOD also serves as an active participant in several interagency committees on export control enforcement. These include the Technology Transfer Working Group, which is primarily oriented to dual-use technology and commodities which have conventional weapons applications and therefore are not controlled by the Missile Technology Control Regime, Nuclear Suppliers Group, or Australia Group. Other important committees are the Nuclear Export Violations Working Group, the Missile Technology Advisory Group, and the Shield, the last of which provides oversight for chemical and biological agents, precursors, equipment and technology.

In sum, in the new, post-Cold War world, the administration and the Department of Defense are giving strong emphasis to preventing the proliferation of dangerous military capabilities and ensuring that the United States will be able to prevail militarily if it must encounter hostile states in unstable regions in possession of WMD. the Department of Defense's export control policies are designed to help achieve these objectives.

Mr. Chairman, this concludes my formal statement. I would be happy to answer any questions that you or the other committee members might have.

Senator SMITH. Thank you, Dr. Wallerstein. Mr. Volkman.

STATEMENT OF AL VOLKMAN, DIRECTOR, ARMAMENTS COOPERATION

Mr. VOLKMAN. Dr. Wallerstein has presented the Department's opening statement, so I do not have a statement of my own.

Senator SMITH. All right.

Mr. VOLKMAN. However, I would like to note that I am representing Dr. Ken Flamm, who the committee had originally asked to attend this morning's briefing. He very much regrets that he is not able to attend. Unfortunately, he is on temporary duty with Under Secretary Kaminski outside of the country, but I will do my best to answer any questions that you might have as far as the acquisi-

tion side is concerned, and in the event that I cannot answer your questions, I have two experts with me here this morning who, if the chair agrees, I would bring to the table if it were suitable, appropriate.

Senator SMITH. All right, sir, thank you. Mr. Cooper.

STATEMENT OF DAVID COOPER, DIRECTOR, ACQUISITION POLICY TECHNOLOGY AND COMPETITIVENESS GROUP, GENERAL ACCOUNTING OFFICE

Mr. COOPER. Thank you, Mr. Chairman. It is indeed a pleasure to be here this morning to discuss the report that we just issued yesterday dealing with export controls of stealth technology and related commodities. Our work highlights what we believe is a real challenge for the Department of Defense as this country pursues a strategy of maintaining technologically superior forces and increasing reliance on dual-use technologies.

One of those challenges in that environment is that technologies like stealth may become available to potential U.S. adversaries through the government's export control system. The U.S. enjoys a rather substantial lead in stealth technologies today over the rest of the world, and that lead translates into a critical combat advantage. This lead could be jeopardized, however, unless the export of militarily sensitive technologies is properly controlled.

In short, our work shows that the export control responsibility for stealth-related technologies in items we examined is shared between State and Commerce. The licensing jurisdiction for these technologies, however, is ill-defined, and may lead to inappropriate exports, and almost did, as I will explain in just a moment.

Under current interagency referral practices, the Department of Defense does not see all stealth-related license applications that are processed by the Department of Commerce. Materials used for stealth have both civil and military applications, and are controlled on the Commerce control list and State's U.S. munitions list. State and Defense officials we dealt with during our review acknowledged that the descriptions in the Commerce control list and the U.S. munitions list covering stealth-related items and technologies do not clearly define which commodities are controlled by which agency. More importantly, State and Defense officials also agreed that the lines of jurisdiction should be clarified to ensure that militarily sensitive stealth technologies and other items are appropriately reviewed and controlled.

The Commerce Department, on the other hand, believes that the jurisdiction over such commodities and technologies was clarified during an exercise in 1991 called the rationalization exercise. Our work, however, shows that the problem of overlapping jurisdiction still remains.

Let me give you the example. In 1994, Commerce approved two applications to export a high performance radar absorbing coating. After the approvals were made, the details of one of the applications was publicly reported. As reported, the stealth material was intended to be used for a cruise missile project headed by a German company to defend against radar frequencies, including those employed by the U.S. Army's Patriot antimissile system.

Commerce also licensed the same commodities to another country for use on a commercial satellite project.

Commerce approved both of these exports without referring either to the State Department or the Department of Defense. The stealth coatings would have been shipped overseas, except that the public reporting of the exports caught the attention of State and Defense officials. Before the material was shipped, State performed a commodity jurisdiction review to determine whether the coating should be controlled under the U.S. munitions list.

State's review, which included consultation with both Defense and Commerce, ruled that the coating was a munitions item and therefore falls under the jurisdiction of the U.S. munitions list.

The firm seeking to export the coating resubmitted its application to State. Because State and Defense were not able to obtain adequate information from the exporter on the exact performance specifications of the coating, State did not approve that material for export.

We believe that these export licenses illustrate the problem of unclear jurisdiction. To clear up the jurisdictional boundaries for such exports, we recommended that the Secretary of State, with the concurrence of the Secretary of Defense and in consultation with the Secretary of Commerce, clarify the licensing jurisdiction between the munitions list and the Commerce control list for all stealth-related commodities and technologies with a view toward ensuring adequate controls under the Arms Export Control Act for all militarily sensitive stealth items.

State agreed with the recommendation. Commerce did not.

We also found that the majority of applications to Commerce for the export of stealth-related commodities are not sent to State or Defense for review. Between fiscal years 1991 and 1994, 15 out of 166 applications we found in Commerce's export control categories for stealth-related commodities were referred to Defense and State for review.

To ensure that export applications for such commodities are properly reviewed, we recommended that the Secretary of Commerce revise its referral procedures to include the Departments of Defense's and State's participation in reviewing all stealth-related export applications unless the Secretaries of Defense and State determine that that review is not necessary.

Again, State agreed with our recommendations. Commerce did not, but Commerce stated that the executive branch is drafting an executive order that would give the relevant agencies the authority to review all dual-use license applications. We have not seen that draft executive order, but if properly constructed and implemented, such authority could improve the review of such sensitive exports by State and Defense.

That concludes my statement. I would be glad to answer any questions you have.

[The prepared statement of Mr. Cooper follows:]

PREPARED STATEMENT BY DAVID E. COOPER, DIRECTOR, ACQUISITION POLICY, TECHNOLOGY AND COMPETITIVENESS ISSUES, NATIONAL SECURITY AND INTERNATIONAL AFFAIRS DIVISION

Mr. Chairman, members of the committee: I am pleased to be here today to discuss our report on export controls over certain low observable technologies and

items.[1] We believe our work highlights a larger issue regarding the challenges the Department of Defense (DOD) faces as it pursues a strategy of maintaining technologically superior forces by increasing reliance on dual-use technologies.

DOD's dual-use strategy is designed to increase the commercial use of defense technologies and apply leading-edge commercial technologies to military needs. In pursuing this strategy, DOD cites the need to take advantage of efficient, market-driven production processes and the more rapid product development cycles found in key commercial sectors such as electronics. By tapping into the efficiencies and pace of innovation found in these commercial sectors, DOD hopes to ensure that its defense technologies and systems keep pace and allow DOD to maintain the superiority and affordability of U.S. military forces.

The challenge to DOD in maintaining technologically superior weapon systems in this dual-use environment is that these technologies may become available to potential U.S. adversaries. The government's export control system has always been faced with the difficulty of balancing the legitimate need for and benefits of U.S. exports, while ensuring national security interests are protected. My testimony today will provide an example of one technology area—low observables or "stealth"—which illustrates the difficulty of maintaining this balance.

We focused our work on one aspect of stealth technology—radar signature reduction. Specifically, we examined (1) how export controls over stealth technology and related commodities are split between the State Department's U.S. Munitions List (USML) and the Commerce Control List (CCL), (2) the impact of shared jurisdiction over stealth-related items, and (3) whether current referral procedures allow DOD to review all militarily sensitive stealth exports.

In short, our work shows that licensing jurisdiction over the stealth-related technologies and items we examined is shared and ill-defined. This unclear jurisdiction may lead to inappropriate exports of this militarily sensitive technology. We also found that under current interagency referral practices, DOD does not review most license applications in stealth-related control categories processed by the Department of Commerce. I will discuss each of these issues in a little more detail.

BACKGROUND

The U.S. export control system is divided into two regimes, one for munitions items under the Arms Export Control Act (AECA) and one for dual-use items under the Export Administration Act (EAA). The Department of State controls munitions items through its Office of Defense Trade Controls and establishes the USML, with input from DOD. The Department of Commerce, through its Bureau of Export Administration, controls dual-use commodities (e.g., machine tools) and establishes the CCL. In general, the ability to deny export licenses for dual-use items controlled on the CCL is more constrained than the broad denial authority afforded by the controls over items on the USML. Thus, at the heart of the issue of how militarily sensitive commodities such as stealth should be controlled is the question: on which list and under which authority should they be controlled?

Low observable technology illustrates the competing objectives of the existing export control system for key dual-use technologies in two ways: (1) the United States has a substantial lead in low observable technologies and items over the rest of the world that translates into a critical combat advantage and (2) there are civil applications for some low observable technologies and materials that make it difficult to control the commodities dissemination and retain U.S. leadership in the field.

JURISDICTION OVER STEALTH-RELATED COMMODITIES IS SHARED BY STATE AND COMMERCE AND ILL-DEFINED

We found that materials used for stealth have civil and military applications and are controlled on both the CCL and the USML. However, the lines of jurisdiction over stealth-related items between the two control lists are not clearly defined.

On the USML, stealth-related commodities are primarily controlled in two general categories. In addition to these two categories, stealth-related items are controlled under several other categories when the technology is incorporated as part of a system or an end-item. For example, fighter aircraft that incorporate stealth features are controlled under the category for aircraft. The CCL controls stealth-related exports under seven export commodity control numbers. These categories are listed in more detail in attachment I. Because some export control classification numbers cover a broad array of items, an undetermined number of the exports classified under these numbers may not be related to stealth.

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[1] *Export Controls: Concerns Over Stealth-Related Exports* (GAO/NSIAD–95–140, May 10, 1995).

State and DOD officials acknowledge that the descriptions in the CCL and the USML covering stealth-related items and technology do not clearly define which stealth-related exports are controlled by which agency. More importantly, State and DOD officials also agree that the lines of jurisdiction should be clarified to ensure that militarily significant items are appropriately reviewed and controlled. The Commerce Department believes that jurisdiction over stealth-related commodities and technology was already clarified during an interagency review process known as the "rationalization exercise" in 1991. Some stealth-related commodities were examined during the course of this exercise, but our work shows that problems of overlapping jurisdiction remain. Further, we believe that unclear jurisdiction has led to problems in Commerce's licensing of sensitive stealth-related commodities.

UNCLEAR JURISDICTION MAY LEAD TO INAPPROPRIATE EXPORTS

In 1994, Commerce approved two applications to export a high-performance, radar-absorbing coating. The details of one of these applications were reported in a major trade publication. As reported, the export application described the high performance claims for the product and indicated that the material would be used for a cruise missile project headed by a German company. The article also noted that the radar frequencies this stealth coating seeks to defend against include those employed by the U.S. Army's Patriot antimissile system. Commerce also granted a license to export the same commodity to another country for use on a commercial satellite.

Commerce approved both of these applications in fewer than 10 days and, under referral procedures, did not refer these applications to either DOD or State. However, even if Commerce had referred the applications and State and DOD recommended that the applications be denied, it would have been difficult to do so as long as the commodity remained under Commerce's authority. A key Commerce official told us that under its regulations, Commerce probably could not have denied the two applications to export the radar absorbing coating.

The stealth-related coatings would have been shipped overseas except that the trade publication article caught the attention of DOD and State officials. Prior to the material being shipped, State performed a commodity jurisdiction review to determine whether the stealth coating actually belonged under the USML.[2] On the basis of State's review, which included consultation with both DOD and Commerce, State ruled that the radar-absorbing coating was under the jurisdiction of the USML. The license applications were resubmitted to State and, because State and DOD were unable to obtain adequate information on the exact performance characteristics of the product from the exporter, the applications were not approved.

Although DOD and State have not verified the exact capabilities and military sensitivity of this product, these export licenses illustrate the problems of unclear jurisdiction over stealth-related exports. Unclear jurisdiction over stealth-related commodities increases the likelihood that militarily sensitive stealth technology will be exported under the generally less restrictive Commerce export control system.

We recommend that the Secretary of State, with the concurrence of the Secretary of Defense and in consultation with the Secretary of Commerce, clarify the licensing jurisdiction between the USML and the CCL for all stealth-related commodities and technologies with a view toward ensuring adequate controls under the AECA for all militarily sensitive stealth-related items. It is important to note that our work focused on only one aspect of stealth—radar signature reduction technology. Low observable technology has many other aspects, including technologies for reducing infrared, acoustic, electromagnetic, and visual signatures and counter-low observable technologies. According to military service officials, any executive branch review and clarification of jurisdiction over low observables should include an examination of whether there is overlap in these other areas of signature reduction and detection. Now, let me turn to DOD's and State's role in reviewing proposed exports of stealth technology and related items.

DOD AND STATE ARE NOT SEEING MOST COMMERCE STEALTH-RELATED LICENSES

We found that the majority of applications to Commerce for the export categories related to stealth are not sent to DOD or State for review. Between fiscal years 1991 and 1994, 15 out of 166 applications under the seven export commodity control numbers related to stealth were referred to either DOD or State for review. (See attach-

[2] Commodity jurisdiction reviews are undertaken when there is a question about which agency controls the export of a commodity. State, in consultation with the exporter, DOD, Commerce, and other agencies, reviews the characteristics of the commodity and determines whether the item is controlled under the USML or the CCL.

ment II.) As I mentioned earlier, because some export control classification numbers cover a broad array of items, some of the export applications classified under these numbers may not be related to stealth. Because of the difficulties posed in sharing Commerce licensing information with DOD technical experts, we were unable to thoroughly analyze the data to determine precisely how many of the 166 cases clearly involved stealth technology.

Why doesn't DOD or State see most of these applications? Commerce referral procedures for the seven stealth-related categories require applications to be sent to either DOD or State for review only when certain conditions are met that depend on the reason for control. The seven control categories we examined cover items controlled on the CCL for either national security reasons (which are tied to the former Soviet Union and East bloc nations) or missile technology reasons (which are tied to a list of 25 countries of missile proliferation concern). (See attachment III.) It is important to note that these referral procedures are based, in part, on agreements between Commerce and DOD.

In general, commodities controlled by Commerce for national security reasons are referred to DOD only if they are going to certain designated countries.[3] National security controls are designed to prevent exports to these countries. Consequently, exports of commodities controlled for national security reasons going to other destinations are generally not restricted, and Commerce does not refer such applications to DOD.

Applications for exports of commodities controlled for missile technology reasons are referred by Commerce only if they meet two key tests. First, the description of the export must fit the definition of missile technology items as described in the Annex to the Missile Technology Control Regime.[4] Second, the export must be going to a country considered to be of concern for missile technology proliferation reasons.[5]

These referral practices lead to some seemingly inconsistent results. Applications for potentially sensitive uses of stealth-related commodities such as military radomes, ships, military aircraft, and cruise missiles were not sent to DOD or State for review. (See attachment IV for examples.) License applications for materials to produce golf club heads, computer housings, and leisure goods were sent to DOD largely because of the country to which they were being exported.

Our point here is not that Commerce or DOD has violated any agreed to referral procedures. Rather, our point is that current referral procedures do not permit DOD, State, and Commerce to ensure that export licenses for potentially militarily sensitive stealth technology are properly reviewed and controlled.

Our report recommends that the Secretary of Commerce revise current licensing referral procedures for stealth-related items that remain on the CCL to ensure that Commerce refers all export applications for stealth-related commodities and technology to DOD and State for review, unless the Secretaries of Defense and State determine their review of these items is not necessary. In commenting on a draft of our report, Commerce stated that the executive branch has drafted an executive order that would give the relevant agencies the authority to review all dual-use license applications. We have not seen the draft executive order, but if properly constructed and implemented, such authority should improve the review of sensitive exports by DOD and State.

Mr. Chairman, that concludes my statement. I will be pleased to answer any questions that you or other committee members may have.

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[3] In addition, Commerce refers to DOD applications involving certain exports going to a special list of countries (mainly countries that support terrorism).

[4] The Missile Technology Control Regime is an international arrangement reflecting the adoption by the United States, in common with the governments of Canada, France, Germany, Italy, Japan, Spain, the United Kingdom, and 17 other countries, of national export control policies designed to limit the proliferation of missiles capable of delivering weapons of mass destruction (i.e., nuclear, chemical, and biological weapons).

[5] Under the terms of the Enhanced Proliferation Controls Initiative, items not on the Missile Technology Control Regime Annex may be referred if Commerce believes the items are destined for a missile project of concern.

ATTACHMENT I

USML AND CCL CONTROL CATEGORIES APPLICABLE TO STEALTH-RELATED COMMODITIES

Portions of USML Categories That Are Applicable to Stealth-Related Commodities

USML category	Portion related to stealth
XIII (e)	Concealment and deception gear, including paints
XIII (j)	Signature measurement gear, signature materials and treatments, and signature control design methodology
Various	Stealth items incorporated as parts of various weapon systems

Portions of CCL Entries Applicable to Stealth-Related Commodities

ECCN[1]	Portion related to stealth
1C21	Materials and coatings for reduced observables, i.e., stealth technology, for applications usable in missile systems and subsystems
1D23	Software specially designed for the development, production, or use of items controlled by 1C21 and 1C01
IE23	Technology for the development, production, or use of items controlled by 1C21
1C01	Materials specially designed for use as absorbers of electromagnetic waves or intrinsically conductive polymers
1E01	Technology for the development or production of equipment or materials controlled by 1C01
1E02	Technology for the installation, maintenance, or repair of materials controlled by 1C01
6B08	Pulse radar cross-section measurement systems and specially designed components

[1] Export control classification number.

ATTACHMENT II

APPLICATIONS AND REFERRALS FOR ECCNS RELATED TO STEALTH

ECCN[1]	Category description	Applications FY91–FY94	Referred to DOD or State
1C21	Materials for reduced observables (i.e., stealth technology) including structural materials and coatings.	28	3
1D23	Software specially designed for the development, production, or use of items controlled by 1C21, 1C01 and other categories.	0	0
1E23	Technology for development, production, or use of items controlled by 1C21 and nine other categories.	24	5
1C01	Materials designed as absorbers of electromagnetic waves or intrinsically conductive polymers.	12	0
1E01	Technology for the development or production of equipment or materials controlled by 1C01 and 18 other categories.	95	6

APPLICATIONS AND REFERRALS FOR ECCNS RELATED TO STEALTH—Continued

ECCN[1]	Category description	Applications FY91–FY94	Referred to DOD or State
1E02	Technology for the installation, maintenance, or repair of items controlled by 1C01 and other categories.	5	1
6B08	Pulse radar cross-section measurement systems and specially designed components.	2	0
	Total	166	15

Note: Because export categories are broad, an undetermined number of the 166 applications classified under these seven categories do not have direct relevance to stealth technology.
[1]Export control classification number.

ATTACHMENT III

REASONS FOR CONTROL ON CCL FOR STEALTH-RELATED COMMODITIES

ECCN[1]	Description	Basis for control on commerce control list
1C21	Other materials for reduced observables	Missile technology concern
1D23	Software for 1C21 and 1C01	Missile technology concern
1E23	Technology for 1C21	Missile technology concern
1C01	Materials designed as absorbers	Missile technology concern and national security concern
1E01	Technology for 1C01	Missile technology concern and national security concern
1E02	Repair items for 1C01	National security concern
6B08	Pulse radar measurement equipment	National security concern

[1]Export control classification number.

ATTACHMENT IV

SELECTED APPLICATIONS REFERRED AND NOT REFERRED BY COMMERCE

ECCN[1]	Commodity	End use	Region
	Selected Applications Referred by Commerce		
1C21	Material and coatings for reduced observables (i.e., stealth technology)	Golf club heads	East Asia
1C21	Material and coatings for reduced observables (i.e., stealth technology)	Computer housings, leisure goods	East Asia
1E01	Technology for the production or development of materials designed for use as absorbers	Manufacturing data on composite structures for civil aircraft	East Asia

SELECTED APPLICATIONS REFERRED AND NOT REFERRED BY COMMERCE—Continued

ECCN[1]	Commodity	End use	Region
	Selected Applications Not Referred by Commerce		
1C21	Material and coatings for reduced observables (i.e., stealth technology)	Reduction of radar cross-section on ship applications	Middle East
1C21	Material and coatings for reduced observables (i.e., stealth technology)	Cruise missile	Western Europe
1C21	Material and coatings for reduced observables (i.e., stealth technology)	Radome on military aircraft	Western Europe
6B08	Pulse radar cross-section measurement systems	Test military aircraft	Middle East

[1] Export control classification number.

Senator SMITH. Thank you, Mr. Cooper. Dr. Davis.

STATEMENT OF DR. ZACHARY DAVIS, ANALYST, INTERNATIONAL NUCLEAR POLICY, CONGRESSIONAL RESEARCH SERVICE, LIBRARY OF CONGRESS

Dr. DAVIS. Thank you, Mr. Chairman. I would like to address some of the broader issues of export controls, national security, and nonproliferation in my remarks and set the framework for this discussion a little bit.

U.S. export control policy traces its roots back to at least the Manhattan Project. Since then, there has been constant recognition that the diffusion of technology can present a threat to U.S. security. Recognizing that threat, the U.S. Congress has played a leadership role in establishing the guidelines for our export control system. Some of the landmark legislation includes the Atomic Energy Act, the Nuclear Nonproliferation Act, and the Export Administration Act. Much of this discussion here today involves efforts to rewrite the Export Administration Act to provide guidance for our export control policy in the post-Cold War era.

It is also important to note that U.S. controls and the U.S. export control system, including the legislation that it is based upon, form the basis for the international and multilateral export control regimes.

Other countries have based their own control systems to a large extent on the U.S. control system, and the United States has provided leadership in the establishment of multilateral control systems. But the end of the Cold War has prompted a reevaluation and a reappraisal of the strategic importance of export controls, and there is underway an effort to provide a new sense of balance between the military aspects of our security and the economic aspects of our security. This effort involves a redefinition of the role of export controls in our security policy, and is focused mainly on high technology exports.

But when we look at the proliferation threat that we are confronting at the end of the Cold War, there is little reason to think that proliferation has abated, and in fact the end of the Cold War may have prompted new proliferation concerns. It may be that we

are entering an age of proliferation, and not on the verge of a diminishing of the proliferation threat.

Against the backdrop of a continuing or perhaps increasing proliferation threat facing the United States at the end of the Cold War, there is little argument about the role of dual-use technology for the construction, development, and deployment of weapons of mass destruction. It is also important to note that to focus on only the most advanced technology does not take into account the role played by old technology. As Dr. Wallerstein mentioned, nuclear technology is 50 years old. Scuds are not much further advanced than the V–2 rocket that made its debut in World War II, and chemical weapons made their debut in World War I. Old technology can contribute as much, or more, to weapons of mass destruction programs than the most advanced technology.

A good example is Iraq's use of calutron technology to enrich uranium for their bomb project. This was a technology that was abandoned by the United States 50 years ago as being outdated. It may be the case that many developing countries would prefer to use old technology, so when our export controls reorient to focus only on the most advanced technology, and we base our controls on the foreign availability and multiple sources of old technology, there is the possibility that decontrol of these old technologies will result in an increase in proliferation risk.

The U.S. control system, as I mentioned, is the model for the rest of the world, but it is by no means perfect. Reports by the General Accounting Office and the Inspectors General of the Departments of State, Energy, Defense, and Commerce have found very significant examples of U.S. dual-use technology being exported to sensitive end users, and we have also discovered that not only are these technologies exported to sensitive end users, but there is little ability to track how these exports are used.

That said, it is still probably the best system in the world, but proliferators are getting better and better at defeating our controls. We found many examples in Iraq, and some more recent examples in Iran, where countries that are trying to acquire dual-use technologies use legal and illegal means to circumvent controls. They set up elaborate and well-financed international procurement networks to acquire technologies that would be forbidden to them through legitimate means.

We have in the case of Iraq many, many examples of the use of dual-use technology in the construction of weapons of mass destruction. I do not need to go into the details of that, these are well-known. But it is useful to recall that Iraq's success in building WMD did inspire new efforts to close some of the gaps in our system and also in the international control systems. We found it necessary to add some new items to the control lists, and tighten up the licensing process to make sure that we did not contribute to another Iraq-type situation.

The Bush administration introduced its enhanced proliferation control initiative (EPCI) which put new items on the control list and tightened up some of the procedures for licensing exports of dual-use goods. The Clinton administration has also made nonproliferation a top national security priority, but at the same time has sought to streamline and reevaluate the export control system

in light of the post-Cold War security environment, and the new emphasis on economic competitiveness.

Legislation introduced in the 102nd, 103rd, and now in the 104th Congress has sought to reorient the U.S. export control system to give greater emphasis to the economic benefits of reduced and relaxed controls. That legislation so far has failed largely due to concerns about the proliferation consequences of relaxed controls. Much of the concern relates to the interagency process that we heard discussed in the General Accounting Office report, in which the Department of Commerce is being tasked to play a larger role in determining which technologies should be made available for export.

It is also worth noting that the Clinton administration has introduced its counterproliferation initiative in which the other lessons of Iraq—that is, the consequences for U.S. warfighting and the consequences for U.S. force projection of confronting enemies armed with weapons of mass destruction—are addressed.

That was a costly war, and it could have been much, much worse had Saddam Hussein elected to use the chemical weapons that he had, or if he had possessed the nuclear weapons that he was very close to wielding. It would be ironic if our counterproliferation effort was made more costly and more difficult by the possession by forces hostile to the United States of advanced technology exported by U.S. companies.

As we undertake this strategic reassessment of the role of export controls, and we try to weigh the costs of export controls and the benefits that accrue to U.S. security through our export control system, there have been numerous attempts to calculate those costs and benefits. The costs of export controls are usually measured in terms of lost jobs, lost contracts, and lost exports. It has been a very difficult thing to quantify. The CRS report on "The Economics of Export Controls" that was released yesterday calls into question some of the economic rationale for decontrol.

But if the costs of export controls are difficult to calculate, it is probably even tougher to calculate the benefits. What do we get in terms of security? How do you measure the security benefits that we get from our export control system? Like deterrence, the contribution of export controls to our national security is hard to calculate in dollars and cents.

I will conclude with a couple of remarks about the shift toward more reliance on multilateral export control regimes to determine the levels of our own export controls. The shift to determine the levels of U.S. export controls based on multilateral consensus on control standards is fraught with many difficulties. These difficulties are inherent in the regimes themselves.

There is little agreement within the regimes on what to control—the control lists themselves are controversial—as are the countries that are included in the control groups, the benefits of being a member, and who the target countries are going to be. Due to this lack of consensus, the regimes offer a weak foundation on which to base U.S. controls.

The example of Russia's sale of reactors and possibly uranium enrichment technology to Iran is a good example of how a multilateral consensus within the Nuclear Suppliers Group has not pre-

vented a cooperating country from going ahead with a very dangerous and ill-advised export. Greater reliance on such control regimes is going to have security consequences for us.

Finally, let me say there is little disagreement on the proliferation threat that we face. There is little agreement that dual-use goods contribute to weapons of mass destruction. The controversy surrounds the priority placed on economic versus security concerns, and the controversy concerns the level of effort that we continue to direct toward controlling these technologies.

Thank you very much. I will be happy to answer any questions.

[The prepared statement of Dr. Davis follows:]

PREPARED STATEMENT BY DR. ZACHARY S. DAVIS, ANALYST, INTERNATIONAL NUCLEAR POLICY, CONGRESSIONAL RESEARCH SERVICE, LIBRARY OF CONGRESS

NATIONAL SECURITY AND NONPROLIFERATION IMPLICATIONS OF REDUCED EXPORT CONTROLS

I. Nonproliferation Export Controls: Background and Issues

The United States established nonproliferation export controls at the beginning of the nuclear age. Congress established guidelines to replace the total secrecy of the Manhattan Project with legislative authority to control exports of nuclear and nuclear-related goods. The Atomic Energy Act of 1954 (AEA), the Nuclear Nonproliferation Act of 1978 (NNPA), and the Export Administration Act (EAA) direct the government to control nuclear materials, information, and technology that could be used to make nuclear weapons.[1] The EAA and other laws govern exports of missile technology, chemicals, and dual-use items that can contribute to the efforts of foreign countries to build weapons of mass destruction.[2] United States legislation and executive branch policies were instrumental in establishing international nonproliferation norms and controls. Collectively, these norms and controls are commonly referred to as the nonproliferation regime. The underlying assumption behind these controls is that proliferation is a threat to U.S. and international security.

The end of the Cold War spurred a rethinking of the strategic rationale for export controls, particularly controls that were primarily intended to deny exports to the Soviet Union and its allies as part of the policy of containment and broad systemic competition with the Communist world. Some have argued that Cold War controls are outdated and do more harm than good for U.S. security. They maintain that in the post-Cold War environment, threats to U.S. security are much reduced, America's global economic competitiveness must be given a higher priority than before, and that America's security depends more than ever on the economic performance of U.S. companies, especially those specializing in the development of advanced technology.[3] In this changed environment, export controls are viewed by some as a hindrance to economic growth and technological advancement that, in their present form, cannot be justified by the proliferation threat. Others, however, view export controls as an essential component of nonproliferation and national security strategy.

II. Proliferation After the Cold War: What to Expect?

The proliferation of nuclear, chemical, and biological weapons and missiles has not abated after the Cold War, and it remains to be seen if the global security situation will encourage more or fewer countries to acquire weapons of mass destruction (WMD). Although there have been some encouraging developments in countries such as South Africa, Argentina, Brazil, and the non-Russian countries of the former Soviet Union (FSU) that have voluntarily given up nuclear weapons capabilities, other countries and sub-national groups retain varying degrees of interest in acquiring,

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[1] On U.S. nuclear nonproliferation policy and laws see: *Nuclear Proliferation Factbook*, prepared for the Committee on Governmental Affairs, S. Prt 103–11 December 1994.

[2] Zachary Davis, Steven Bowman, Robert Shuey, and Theodor Galdi, *Proliferation Control Regimes: Background and Status*, CRS Report for Congress, 95–547 F, April 27, 1995.

[3] See, for example, Trade Policy Coordinating Committee, Toward a National Export Strategy: U.S. Exports=U.S. Jobs, Report to the Congress, September 30, 1993; J. David Richardson, *Sizing Up U.S. Export Disincentives*, Institute for International Economics, 1993; Council on Competitiveness, *Economic Security: The Dollar$ and Sense of U.S. Foreign Policy*, February 1994. For economic analysis of claims regarding the cost of export controls see Glennon Harrison, *The Economics of Export Controls*, CRS Report for Congress, 95–575, May 9, 1995.

maintaining, or improving WMD capabilities. The Central Intelligence Agency estimates "at least 20 countries . . . already have or may be developing weapons of mass destruction and ballistic missile delivery systems."[4] Predicting proliferation is difficult, but it is prudent to assume that without a radical improvement in the prevailing characteristics of world affairs, proliferation—like war—will not soon disappear.

III. Dual-Use Exports and Proliferation

Producing WMD involves industrial processes which utilize a wide range of equipment and materials commonly used for legitimate industrial activity.[5] The technology for making nuclear weapons is over 50 years old; chemical weapons date back to the First World War, and Scud missiles are cousins of Germany's World War II V–2 rocket. Old technology can contribute as much, or more, to WMD proliferation as advanced technology.[6] Developing countries may not want the most advanced methods or materials for making WMD, or may choose less sophisticated technologies for a variety of reasons. Iraq's use of calutron uranium enrichment technology, which was abandoned by the United States soon after World War II, demonstrates the utility of obsolete WMD technology. Eliminating export controls to accommodate increased international commerce in dual-use equipment increases the risk that such exports will be used for military purposes.[7]

The current U.S. control system has significant weaknesses which may not prevent diversions of U.S. dual-use exports for WMD development. Recent reports by the Inspectors General of the Departments of Defense, State, Energy, and Commerce found serious flaws in the U.S. ability to verify how U.S. dual-use exports are used, or whether end-users are complying with restrictions on the use of those items.[8] The General Accounting Office found similar problems in the U.S. ability to verify the end uses of sensitive, dual-use nuclear technology, including significant exports to countries known or suspected of conducting proscribed nuclear activities.[9]

Despite these problems, the U.S. control system is widely regarded as the most effective in the world. Other exporting countries, including members of the defunct Coordinating Committee on Multilateral Export Controls (COCOM) and participants in the various proliferation control regimes, probably have comparable deficiencies in their national export verification and enforcement systems.[10] Yet multilateral agreements such as the Nuclear Suppliers Group (NSG), the Missile Technology Control Regime (MTCR), and the Australia Group (for chemicals) rely on their members' assurances to employ their national verification and enforcement systems to uphold regime standards. When these system fail, the multilateral control regimes have no authority or resources to monitor or enforce commitments or to punish violations.

Moreover, proliferators circumvent national and multilateral controls by establishing illicit procurement networks. In testimony before the Senate, former CIA Director R. James Woolsey warned that proliferators "are becoming more clever in devising networks of front companies and suppliers to frustrate export controls and buy what would otherwise be prohibited to them." Iran has reportedly established such a network.[11] As a result of weaknesses in the existing national and multilateral control systems, there is ample evidence that dual-use equipment has been used to advance WMD programs.

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[4] *The Weapons Proliferation Threat,* CIA Nonproliferation Center, March 1995, p. 2.

[5] *Technologies Underlying Weapons of Mass Destruction,* Office of Technology Assessment, OTA–BP–ISC–115, December 1993.

[6] Peter Zimmerman, "Proliferation: Bronze Medal Technology Is Enough," *Orbis,* Winter 1994.

[7] Office of Technology Assessment, *Export Controls and Nonproliferation Policy,* OTA–ISS–596, June 1994, p. 24.

[8] *The Federal Government's Export Licensing Processes for Munitions and Dual Use Commodities, Special Interagency Review, Final Report, Conducted by the Offices of Inspector General at the U.S. Departments of Commerce, Defense, Energy, and State, September 1993; Tony Capaccio, "State Department Control Over Missile Technology Exports Are Lacking, Defense Week,* April 24, 1995.

[9] *"Export Licensing Procedures for Dual-Use Items Need To Be Strengthened,"* General Accounting Office, GAO/NSIAD–94–119, April 1994.

[10] *Beyond COCOM: A Comparative Study of Export Controls: Germany, United Kingdom, France, Italy and Japan and the European Union Export Control Regulation,* American Bar Association, Standing Committee on Law and National Security, Task Force on Nonproliferation of Weapons of Mass Destruction, September 1994, p. 105.

[11] Chris Hedges, "A Vast Smuggling Network Gets Advanced Arms to Iran," *New York Times,* March 15, 1995.

IV. The Lessons of Iraq

There is no better illustration of the contribution of dual-use equipment to WMD than Iraq prior to the Persian Gulf war. Saddam Hussein was able to purchase through legal and illicit channels a wide range of dual-use equipment, in spite of national and international controls. A long list of European and U.S. firms sold Iraq the equipment needed to build nuclear, chemical, and biological weapons and missiles.[12] The elimination of Iraq's WMD was risky and expensive, but the war could have been far worse if Saddam had used his chemical weapons or if he had possessed the nuclear option he was close to acquiring.

The experience of fighting a war against an enemy armed with WMD motivated U.S. and international efforts to improve national and international controls on the export of dual-use goods and technology. Soon after the Gulf war, the Bush administration introduced the Enhanced Proliferation Control Initiative (EPCI). The EPCI expanded licensing requirements for many dual-use goods and imposed new penalties for individuals and companies contributing to WMD programs.[13] The Clinton administration has made nonproliferation a top priority, but has also sought to streamline export controls to reduce their effect on U.S. companies. Many companies, especially those producing advanced technology, oppose the EPCI controls as well as other export control rules and regulations and have called for new policies and legislation to overhaul the existing export control system. Efforts by the administration and Members of Congress to pass new export control legislation failed in the 102nd and 103rd Congress, largely due to concerns about increased reliance on multilateral consensus to govern U.S. controls and the proliferation consequences of relaxing U.S. and multilateral controls.[14] Nevertheless, significant decontrols have been implemented through changes in regulations. These include lifting licensing requirements on computers and other goods.

The Clinton administration also launched an initiative to enhance U.S. military capabilities to detect, deter, and defeat WMD-armed enemies. The Defense Department counterproliferation initiative is proposing a variety of programs to meet the post-Cold War, post-Iraq proliferation challenge, which could substantially effect U.S. warfighting and force projection options in the future.[15] A 1994 DOD report to Congress on counterproliferation identified "detection and tracking of shipments and control and accountability for stocks of WMD-related materials and personnel including worldwide WMD and dual-use item tracking" as a high priority for increased investment of DOD resources.[16] Beyond complicating the job of tracking exports of sensitive items, the possibility that decontrols of dual-use technology created new problems for counterproliferation doctrine bears attention.

The strategic rationale for export controls survives the end of the Cold War. A combination of steady or escalating proliferation and expanding access to WMD technology suggest that a relaxation of national and international controls could contribute to WMD development. The main issue for U.S. national security and nonproliferation/counterproliferation policy is what adjustments in organization and resources are required to improve their effectiveness.

V. The Balance Between Economic and Military Security

Critics of dual-use export controls emphasize their economic costs. Many have called for a revised definition of security which balances economic security with military security. The costs of export controls are very difficult to quantify; critics cite lost sales due to the burdensome and inefficient licensing process for many dual-use exports.[17] While the benefits of export controls are more difficult to measure,

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[12] "Iraq's Nuclear Weapons Capability and IAEA Inspections," Joint Hearing before the Subcommittees on Europe and the Middle East and International Security, House Committee on Foreign Affairs, June 29, 1993, Peter Zimmerman, Iraq's Nuclear Achievements: Components, Sources, and Stature, CRS Report for Congress, 93–323 (revised), June 4, 1993; Gary Milhollin, "Iraq's Bomb, Chip by Chip," *New York Times,* April 24, 1992.

[13] Fact Sheet on Enhanced Proliferation Control Initiative, The White House, Office of the Press Secretary, December 13, 1990.

[14] Glennon Harrison, *Export Controls in the 103d Congress: New Issues, New Policies?* CRS Report 94–277, March 31, 1994.

[15] Secretary of Defense, Annual Report to the President and Congress, February 1995, pgs. 71–82; Zachary Davis and Mitchell Reiss, *U.S. Counterproliferation Doctrine: Issues for Congress,* CRS Report for Congress, 94–734, September 1994; and John Collins, Steven Bowman, and Zachary Davis, *Nuclear, Biological, And Chemical Weapons Proliferation: Potential U.S. Countermeasures,* CRS Report for Congress, 94–528, July 1994.

[16] Report on Nonproliferation and Counterproliferation Activities and Programs, Office of the Deputy Secretary of Defense, May 1994, p. 32.

[17] Glennon Harrison, *The Economics of Export Controls,* p. 5; OTA, Export Controls and Nonproliferation Policy, p. 67; John Harvey, Cameron Binkley, Adam Block, Rick Burke, *A Common-*

estimates of their costs are measured in terms of lost jobs and decreased competitiveness of U.S. companies in the global market. Moreover, some argue that economic constraints caused by export controls hinder the ability of U.S. companies to stay on the cutting edge of technology research and development, thus denying the U.S. military technology that might otherwise have been made available through civilian research and development.[18]

It is hard to put a price tag on the security benefits of dual-use export controls. A recent CRS study of the economics of export controls found that "when it comes to the proliferation of weapons of mass destruction and other controls imposed for national security purposes, the justification for effective export controls would . . . remain equally valid whether the cost imposed was a little or a lot."[19] Like preventing war and aggression through deterrence, the security benefits of nonproliferation controls are often unknowable and incalculable. How much is it worth to reduce the risk that countries (or groups) hostile to the United States will acquire nuclear, chemical, or biological weapons and delivery systems? From a nonproliferation/national security perspective, the benefits of export controls are measured in terms of WMD not built or delayed, knowledge gained about the buying patterns of potential proliferators, and American leadership in opposing reckless exports.

VI. American Leadership and Multinational Consensus on Dual-Use Export Controls

The current international system of controls is the product of American leadership. Unilateral U.S. laws and policies provided a model for other countries to develop their own controls and formed the basis for the multilateral control regimes (NSG, MTCR, Australia Group, COCOM successor).[20] In the proliferation context, regimes have become hybrid entities that are part supplier cartel, part international organization, and part confidence building mechanisms. They are voluntary, unverified agreements to harmonize the way member countries control certain exports. While regimes have been useful in building consensus for restricting certain items to certain countries, they have not prevented their members from contributing to weapons of mass destruction programs in countries such as Iraq, Iran, Libya, and elsewhere. Enforcement is left to the discretion of the members. In most cases regimes have little or no formal institutional presence, no independent budget, and no permanent staff.

U.S. allies often resisted efforts to strengthen controls, but eventually adopted comparable measures of their own. Proposals for the United States to adjust its controls to reflect multilateral consensus within the various control regimes and eliminate unilateral controls could reverse a pattern of U.S. leadership in nonproliferation. A shift toward greater reliance on multilateral consensus is expected to result in further relaxation of controls.

There have been disagreements within the various control regimes regarding (1) the list of items to be controlled; (2) the countries included as members or associate members in the control regimes; (3) the benefits offered for membership or adherence to control regimes; (4) the list of countries of concern. The disbanding of COCOM in March 1994 and the failure to replace it with a new organization is symptomatic of the lack of multilateral consensus on dual-use export controls. Each of the four areas of disagreement is briefly summarized below.

(1) What to Control?

There has often been disagreement on what the control regimes should control. Control lists that reflect multilateral consensus within the regimes represent the lowest common denominator of controls that can be negotiated among numerous countries with different domestic and foreign policy objectives. Perhaps the most significant change to the existing export control system would result from the proposed

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Sense Approach to High-Technology Export Controls, Center for International Security and Arms Control, Stanford University, March 1995, p. 7.

[18] Department of Defense, Report to Congress on the Effect of Increased Use of Dual-Use Technologies on Ability to Control Exports, required under section 1422, Defense Authorization Act for Fiscal Year 1994, p. 4.

[19] Glennon Harrison, *Economics of Export Controls*, p. 5.

[20] Historically, the United States has established unilateral controls based on nonproliferation criteria such as found in sections 5 and 6 of the EAA and section 309(c) of the Nuclear Nonproliferation Act of 1978. The NNPA requires the Commerce Department to control "all export items . . . which could be, if used for purposes other than those for which the export is intended, of significance for nuclear explosive purposes." Similarly, Article I of the Nuclear Nonproliferation Treaty obligates each nuclear weapon state "not *in any way* to assist, encourage, or induce any non-nuclear weapon State to manufacture or otherwise acquire nuclear weapons . . ." And the current Export Administration Regulations (Parts 778.1–778.4) require consideration of various nonproliferation factors to determine whether to grant licenses for dual use goods, including the nonproliferation credentials of an end user.

increase of reliance on foreign availability as a determinant for maintaining or eliminating controls. If, for example, sensitive technology is available from a supplier such as China, the regime would not attempt to control it. This criterion could relax controls on sensitive items based on their availability, not their inherent ability to contribute to WMD. The result could be expanded availability of a wide range of dual-use items.

(2) Who Is A Member?

Regime membership has been steadily expanding. But there are questions about the inclusion of certain countries. Should countries with questionable nonproliferation credentials be invited to join? The inclusion of Russia (and the exclusion of China) raises questions about the reliability of multilateral controls. The severe problems of Russia's export control system and China's emergence as a supplier of dual-use technology both undermine regime controls. Furthermore, two new categories of membership have emerged: regime adherents and cooperating countries. Are adherents and cooperating countries held to the same standards as regular members? China, Russia and Israel, for example, are adherents to the Missile Technology Control Regime.

(3) The Benefits of Being a Regime Member: License Free Zones?

The issue of membership raises questions about the special privileges afforded to regime members. Legislation proposed in the 103d Congress sought to make the regimes into license-free zones for all members. Consequently, any member of a regime would have unrestricted access to sensitive items and technology that are controlled to non-regime countries. This presumes that all regime members have excellent nonproliferation credentials and would never pose a threat to U.S. interests. This may not be the case, particularly if regime membership is broadly defined to include "adherents" and "cooperating countries." Some regime "adherents" may even have covert weapons programs or questionable nonproliferation credentials. If adopted, this would shift the objective of nonproliferation from opposing weapons acquisition in all cases to a more narrow objective of opposing proliferation in specific non-regime countries, often referred to as "rogue nations."

(4) Who Are the Countries of Concern?

Regime members have often found it difficult to agree on the list of target countries. Disputes over the lifting of sanctions against Iraq or the sale of nuclear reactors to Iran illustrate the point. One country's rogue nation is another country's reliable customer or strategic ally.

None of these problems invalidates the use of regimes to advance nonproliferation norms and practices. They do, however, raise questions about increasing dependency on regimes as a primary means to protect national security and about the shift of emphasis in nonproliferation policy to give higher priority to economic considerations. The issue for Congress is the dependability of such regimes for safeguarding vital security interests. Export control legislation in the 102d, 103d, and 104th Congress' raised the question: Should the United States base its nonproliferation export controls primarily on multilateral agreements or on more unilateral export control standards?

VII. Concluding Remarks

There is little disagreement concerning the serious nature of the proliferation threat. Nor is there much disagreement that dual-use equipment can contribute to WMD acquisition and development. Saddam Hussein's nuclear, chemical, biological weapons and missiles provided a wake-up call for the proliferation hazards of dual-use goods. Few would contest that decontrols increase the availability of currently controlled items. More controversial issues are the priority given to economic considerations and the level of USG effort that should be directed toward sustaining adequate controls on dual-use technology.

Some believe that the economic costs, however they are measured, and the shortcomings of the current control system make it necessary to scale back the USG effort in order to concentrate on keeping only the most advanced technology out the hands of a few "rogue" states. Greater emphasis on economic security would be achieved by shifting decisionmaking authority for exports of dual-use goods from the Departments of Defense and State to the Department of Commerce. Others prefer to strengthen the U.S. system, unilaterally if necessary, to meet the demand for timely decisions on exports of items which could assist the development of WMD.

They argue that reckless exports by other countries do not justify similar behavior by the United States.[21]

The end of the Cold War reduced some national security threats, but it did not reduce the proliferation threat. Now, as before, the policy and practice of the United States will send a message to other countries about the priority of WMD proliferation for U.S. national security. A decision by the United States to put economic considerations before nonproliferation/national security would probably encourage similar decisions by other countries.

Senator SMITH. Thank you, Dr. Davis.

I would like to recognize the distinguished Chairman of the committee, Senator Thurmond, for his opening remarks.

Chairman THURMOND. Mr. Chairman, thank you very much.

I want to thank the witnesses for coming and testifying. I am sure it will be very helpful to us. Receiving this expert testimony is an advantage to our country, and we express our appreciation to you.

Mr. Chairman, I want to thank you for chairing this important hearing. I had to open the Senate, and I have several other important meetings that I have to attend so I will not be able to stay for the entire hearing.

I am very concerned, as are the members of this committee, about the impact of lowering export controls on U.S. defense capabilities, as well as its impact on the U.S.' industrial base. The transfer of these technologies could undermine national security interests and the technical advantages of American companies in the international market.

Most importantly, I want to make sure that our Armed Forces do not have to face their own technologies on some future battlefield because we have exported a large number of dual-use technologies to foreign countries.

To our distinguished panel of witnesses, I want to again express my appreciation for their willingness to share their expertise in this area.

Mr. Chairman, I have a few questions, but I will leave them to be answered for the record to save time. Thank you very much.

Senator SMITH. Thank you, Mr. Chairman. Senator Nunn, do you have any opening remarks?

Senator NUNN. Mr. Chairman, thank you for having the hearings. I think they are very important. I appreciate our witnesses being here, and I am trying to catch up on all the statements, and I will stay as long as I can. I will just put my statement in the record, if I could.

[The prepared statement of Senator Nunn follows:]

PREPARED STATEMENT BY SENATOR SAM NUNN

Thank you Mr. Chairman, I do have a brief opening statement.

I would like to begin by thanking you for holding this hearing. I have long felt that the proliferation of weapons of mass destruction is one of the most important security issues that we face today. Because of my concerns about proliferation I believe it is right on target for us to examine the interaction between the positive benefits that our nation receives from trade and the possible negative impact that could come if American technology were to be used by other nations to further the development of weapons of mass destruction or counter our military capabilities.

I would also join you in welcoming our witnesses today.

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[21] Senator John Glenn, "Export Controls in the New World Order," *Proliferation Watch*, July–August, 1993.

Last week we had a very interesting and informative subcommittee hearing on the issue of the "Revolution in Military Affairs". Senators Smith and Bingaman who arranged that hearing have been the leaders on this committee in examining the impact of technology on warfare, and on our national security. In that hearing, Vice Admiral Owens, the Vice Chairman of the Joint Chiefs of Staff, spoke of the impact of what he called "Dominate Battlefield Awareness", as one aspect of the revolution in warfare. As I understand it, he was saying that if we can sense where the enemy is, target him immediately, attack him, and then know if we were successful, and do all of this in real time faster than he can we will dominate the battlefield of the future.

As we discussed this new concept in warfare where information processing is a dominate factor it came out that much of the technology in this approach is commercial technology available to most nations. This raises the very real question of whether other nations will take this technology and begin to use it in ways that may endanger our security. As more and more of our research becomes dual-use this issue of control becomes larger and more complex.

A good example of this is commercial satellite technology. If the Iraqis had had access to the kind of commercial satellite imagery that will soon be available, would they have detected the end run we performed in the desert with the 24th infantry division that allowed us to get around their lines and cut them off from their bases? Now if we do not want the Saddam Husseins of the world to have this kind of information we have to develop a system of international controls that covers all of the nations that can provide the information. It does no good for us to say that American companies cannot sell such information if the Europeans or the Russians or someone else is going to sell it commercially.

When you ask a similar question about the spread of commercial technology which could help a potential adversary develop weapons of mass destruction, the answers you sometimes receive are pretty scary.

As you know, Mr. Chairman, I have been concerned for several years about the problem of proliferation of weapons of mass destruction and related technology that Russia inherited from the former Soviet Union. The focus during yesterday's meeting between Presidents Clinton and Yeltsin in Moscow on the sale of Russian civilian nuclear technology to Iran reinforces the immediacy of this problem. So I am particularly interested on what we are doing to ensure a responsible role for Russia in the export control regime that will replace the COCOM system.

Mr. Chairman, I support what you are doing here today and appreciate your leadership in organizing this hearing. Reasonable people may differ on where the line should be between promoting the export of U.S. technology and guarding against the misuse of our technology by our actual or potential enemies around the globe. The importance of the issue, however, requires that it be thoroughly aired. I commend you for doing so this morning.

Senator SMITH. Thank you very much, Senator Nunn. Why don't we have 6 minute rounds for questions, and then if there are more questions, a second round.

Dr. Wallerstein, let me start with you. In reading your statement regarding the Department of Defense's counterproliferation initiative—certainly we would be supportive of that kind of initiative to try to restrain the spread of technology that could come back to be used against us—it just seems to me that the facts or the circumstances since 1991 seem to run against your position in that counterproliferation initiative.

I am going to make a brief statement here and then ask you a question related directly to it. After the Soviet Union fell, U.S. exporters really pressed the administration, both the Bush administration, and continued under the Clinton administration to relax export controls to enhance competitiveness.

We agreed to transfer licensing responsibilities for a lot of sensitive items that were under dispute, such as the inertial navigation systems and military image intensifiers to the Commerce Department. It is pretty clear that these technologies can significantly aid the development of a force projection that could even turn into

a force multiplier, which could have a negative impact on the United States.

And I think finally, I am concerned with the administration's position of offering technology as an incentive to governments so that they will end their nuclear arms race initiatives and weapons of mass destruction, you know, in essence that policy permitted a large number of developing nations that have agreed to forego weapons of mass destruction to have access to space launch technology, allegedly for peaceful purposes, and relaxing other trade restrictions.

It just seems to me that that policy runs counter to the Department of Defense's proliferation initiative, and let me put it specifically on this question. In September 1993, the President made a statement on nonproliferation and export technology and maintained that the proliferation of weapons of mass destruction was a threat, and that to encourage other nations not already members of arms control regimes like Missile Technology Control Regime to join and to become members in good standing. If they did, the United States would offer advanced technology as an incentive.

My question is, would any—let me ask you about this country—about Russia? Does the transfer of rocket stages to India, and/or nuclear reactors to Iran, put Russia in good standing under that agreement?

Dr. WALLERSTEIN. Senator, you are certainly correct in characterizing the fact that we face a fundamentally different situation than during the Cold War. U.S. industry sees itself hard pressed by competitors and has become increasingly outspoken about the need to assure that there is level playing field in the terms of the kinds of controls that are imposed.

As I noted in my opening remarks, we also recognize that the kinds of threats that we now face are more diffuse, and so we have to take each one on a case-by-case basis.

In the case of the Russian relationship with India on missile technology, I would note that, in fact, it was the U.S. imposition of sanctions against Russia that ultimately led to a negotiation with the Government of the Russian Federation which resulted in a modification in the nature of that relationship. We believe that once the T's are crossed and the I's are dotted in terms of that agreement, it will be possible for Russia to become a full member of the MTCR.

Senator SMITH. Let me just follow up on this point. Not only Russia, but China transferred M–11 missiles to Pakistan—they are two members who would not be considered members in good standing. I recognize that you applied some sanctions to these countries, but as I understand it they are still importing dual-use technology and we are still exporting dual-use technology to these countries. We have not stopped doing that, have we? What good is the sanction if we do not stop exporting technology to these countries?

Dr. WALLERSTEIN. In the case of China, the sanctions that were imposed were Category II sanctions. I do not mean to get down in the weeds in terms of the Missile Technology Control Regime, but there is a distinction in terms of the kind of sanctions that were imposed. The Chinese case is illustrative, because a negotiation took place which was successfully concluded in October 1994. The

Chinese agreed for the first time to recognize the notion of "inherent capability" of missile systems and to acknowledge that the M–11 system met the inherent capability criteria, and therefore by implication should be considered a so-called Category I system and not be exported. This was a major step forward on that problem.

I do not mean to suggest that the problem is solved completely, because we are still worried about production technology and know-how. But the fact that that step forward took place was, in part, a result of the fact that the U.S. maintained a steadfast position and did impose the Category II sanctions.

You are correct of course, that we do export dual-use technology to China. At the time that the October agreement was signed, the Category II sanctions were removed; they were waived. Thus, China is not under sanction at this point, and there was no reason not to export this technology to them.

Senator SMITH. Mr. Cooper, let me ask you to respond to this, and anyone else who may want to respond to it. How can the Department of Defense really rely on technologies for their front line defenses, if you will, if the export controls on that technology that they use is decontrolled by the Commerce Department, whose primary mission is the promotion of trade? Is that not an inherent contradiction in policy?

Mr. COOPER. Well, as our report points out and our work has shown, there is a fairly serious problem there, particularly when the Department of Defense, we believe, does not see the export licenses that Commerce is approving, and as our example showed in this one particular case with that stealth coating for that foreign cruise missile, Commerce did not feel it necessary to refer that application to either State or Defense. And when we talked to the technical experts—the stealth experts as well as some of the export control experts in the Department of Defense—they feel they need to see those kinds of applications in order to prevent these militarily sensitive technologies from getting to the wrong people.

Senator SMITH. They are not always winning the debate over there, though, are they?

Mr. COOPER. No. It does not look that way at all.

Senator SMITH. I will follow up on that later. Senator Bingaman.

Senator BINGAMAN. Okay. Let me just ask a few questions here.

My strong impression after hearing testimony on this subject for several years now is that this licensing system we have in place is broken between these three departments, and for some reason we do not seem to be able to fix it. It does not seem to require any great insight to figure out how to fix it, but it does not seem to be able to get fixed.

Now, Mr. Cooper, your report says that you recommend that the Secretary of State, with the concurrence of Defense and Commerce, clarify the licensing jurisdiction between the USML and the CCL, and you say for all stealth-related commodities, but I would say for all defense-related—defense-sensitive commodities.

What is your position on that, Dr. Wallerstein?

Dr. WALLERSTEIN. Senator Bingaman, we support the effort to rationalize this process. In fact, let me just say for the record that, although we have only seen the General Accounting Office report

in final draft today, we take quite seriously the recommendations that they are making.

I would note that the approach that the Clinton administration took to a new Export Administration Act in the last Congress was characterized by a fundamental principle that there would be openness, transparency, and information-sharing between the agencies. In fact, the problem that has been described here this morning would be resolved, and we in Defense continue to support very strongly that kind of openness.

We think it is essential that we have access to any license information or related data that could help us to assess the military impact of a particular export. I am convinced that we will put a bill forward during this session of Congress. In fact, the President has committed us to putting a new bill forward, and we intend to do that. Along with the legislation an executive order is in development that would resolve the very kind of issue that you are identifying.

Senator BINGAMAN. Well, I guess to follow up on that, it strikes me that one of the things that modern technology has allowed us to do is to really institutionalize the sharing of information much more effectively than we used to.

I mean, in my office, when I send an E-mail to one of my legislative assistants here in Washington, I also send it to my State offices to be sure that people know what is going on. It seems like you could get someone in to just put you guys on the E-mail system. I mean, does that require an act of Congress to get something like that done? [Laughter.]

Dr. WALLERSTEIN. I have to agree that it seems like a no-brainer, but in fact the situation is somewhat more complicated. In many cases we are dealing with highly classified information. We are also dealing with proprietary information, because each of the licenses contains proprietary data from the company seeking the license. So, all of that needs to be protected.

There is a system that exists. I would not try to tell you that it is completely efficient in its current form. We have been urging for many years switching to a fully electronic license review process. There are some technical problems associated with that, in addition to the classification and proprietary concerns, because many of the licenses come with voluminous amounts of supporting data in hard copy that would have to be scanned in. So, this becomes a problem; but it is not an insurmountable problem, and certainly it is one which we should step up to as the budgets permit.

Senator BINGAMAN. Well, just for my own point of view, I think that some of the new sentiment that is abroad in the land about how people are anti-government results from the fact that it does not seem that we can ever get things brought to closure, and we are going to have a markup, what, next month some time, I think in June, of our Defense authorization bill.

If the administration does have legislation to propose, as you say they do, in this area it would sure be good to get it here so we could include it in that markup if that is the appropriate place for it, and get it fixed, because there are a lot of things in play.

We have a budget resolution in the Senate that says we are not going to have a Department of Commerce. We have another budget

resolution in the House that says we are not going to have a Department of Commerce, so that is not a conferenceable item, as I understand things are supposed to work around here, and it would be real good to just try to get the administration's proposal for how to fix this piece of it.

Dr. WALLERSTEIN. Senator, if I may just clarify, what I was referring to was the reintroduction of an Export Administration Act.

Senator BINGAMAN. Oh, okay. That would go to Banking, then.

Dr. WALLERSTEIN. That is correct.

Senator BINGAMAN. Well, that would be useful for us to see that and see if there is anything that is required in the way of changes in the legislation that this committee has jurisdiction of during the Defense authorization bill, because some way or another, we do have these Inspector General's reports Mr. Cooper referred to, Dr. Davis referred to.

We have this latest General Accounting Office report. We have, in fact, a whole stack of these General Accounting Office reports, all of which refer to the fact that we do not seem to be able to get the information back and forth so that we catch these things before we go ahead and transfer the technology, so I would like to see us try to do something on that rather than just kick it down the road for another Congress.

Dr. DAVIS. Senator, may I add a point on that? There is a natural tension that exists among the different agencies that have responsibility, and much of the tension results from the differing mandates that they have. There is a natural tension that exists between the Commerce Department, whose primary mission is to sell U.S. products abroad, and DOD, which looks after our security concerns.

Senator BINGAMAN. Well, I would just point out, though, that the solution to the tension is not for the Commerce Department to keep information from DOD. It is for them to all sit down and resolve it on a case-by-case basis. That is the only rational solution.

Dr. DAVIS. But it comes down to who has the final say as to what goes on the list and what gets reviewed, and some of the legislative proposals have suggested the way to ease this tension is to simply scale back and cut the system back, trim back——

Senator BINGAMAN. I guess we have two problems. One is, who are we giving the final say to, but the other one is, why can we not at least be sure that the Department of Defense's voice is heard before decisions are made, because even if the Department of Defense does not have the final decisionmaking authority, I think their point of view should be heard and they should be fully informed before Commerce runs off and does something.

Mr. COOPER. Could I add to that? I think that is the exact point that we are trying to make in our report, because the two recommendations, number 1 is to clear up the jurisdictional boundaries of where the items belong, and number two, after that is cleared up, there is still information that needs to be exchanged between the key agencies that are involved in the control of these exports, and that is what we are trying to address.

Senator BINGAMAN. Thank you, Mr. Chairman.

Senator SMITH. Senator Nunn.

Senator NUNN. I will just ask a couple of questions, Mr. Chairman. When do you expect the multilateral export control regime to be in place?

Dr. WALLERSTEIN. Senator, as you may know, a principal dimension of this issue was under discussion at the Summit that has just concluded. The negotiations on the successor regime to COCOM have been underway now for over a year. They have proceeded quite far. I have been in attendance at all of the multilateral meetings where these issues were taken up.

Senator NUNN. Will Russia be a member?

Dr. WALLERSTEIN. This is exactly the point I was about to make. A key stumbling block on which all of the participating States (of which there are now 23) agreed is that for the regime to be effective Russia must be a member. Ultimately, other States, such as China, should also become members, too.

Senator NUNN. But China is not in the cards right now.

Dr. WALLERSTEIN. China is not in the cards at the present time. There have been bilateral discussions with the Russian Government regarding its arms sales export relationship with Iran, and that issue was taken up beginning in the 1993 Summit between President Yeltsin and President Clinton.

We do not yet have all the details of what was discussed and agreed at the Summit, and we will have to await the return of the party. But it appears that some additional progress was made on resolving that matter between the two governments. If so, it should be possible to move ahead with the regime in the very near future.

Senator NUNN. Every time I have been with Russians, including Foreign Minister Kozyrev in the last couple of years, one of the principal focal points that they have had is what they perceive to be the West, including the United States, freezing them out of their export opportunities for conventional weapons.

In my opinion, that is exaggerated, because I think they have lost an awful lot of that market because of their lack of having competitive equipment, as demonstrated in the Persian Gulf war, and because they were doing so much financing in the Soviet Union for exports which they can no longer afford to do, but nevertheless, that degree of perception on their part is very real.

How are we going to have a strategy and having them as part of COCOM when their principal customers are the ones that cannot buy from the West, since that is one of the reasons they want to buy from Russia, is because they are not able to buy from the West?

It seems to me—and I do not have an answer to this, but this is a question—that there is almost an inherent conflict between Russia's export goals now and the West's efforts to curb technology to, let us call it, unstable regimes, and I do not know how this is resolved, but I do know there has to be some strategy in dealing with it vis-a-vis both Russia and vis-a-vis the broader question of replacement of COCOM, whatever that is going to be called.

Do we have a strategy? Are we working on a strategy?

Dr. WALLERSTEIN. Well, I think it is fair to say we are certainly working very hard on a strategy. We have set three fundamental criteria for any state's membership in the new regime. First, they must support the norms and adhere to the various regimes that re-

late to nonproliferation. Second, they must not be engaged in selling armaments or dangerous dual-use technologies to states of proliferation concern. Third, they must have an indigenous export control system. We are working with the Russian Government to help them accomplish these three objectives.

Now, as you say, the key issue is the one related to their cessation of exports to states of proliferation concern.

Senator NUNN. Well, once they cease exporting to states where we have a concern about proliferation, who are going to be their customers? You think the Europeans are going to buy Russian military equipment, or our friends in Southeast Asia, or Saudi Arabia? I mean, where are they going to shop, or to sell?

Dr. WALLERSTEIN. Well, of course, you are absolutely right. The question of the competitiveness of their arms systems, and military systems is certainly open to question, particularly after the revelations of the Gulf war.

I would have to say that my area of responsibility does include questions of promoting arms sales. But I would say that the Russian Government will have to decide where its long-term interests lie. If they wish to be a part of the western trading system, not just speaking now in military terms but in broader economic terms, they will have to play by the same rules as the other governments have agreed to abide by.

Senator NUNN. Well, this is a related subject, because it relates to revenue, but we agreed to buy the Russian highly enriched uranium as well as the Ukrainian highly enriched uranium as part of a proliferation control measure, but also we were trying to do it in a way that we could recruit most of our money from commercial sales so there would not be a net cost to the taxpayer.

Recent indicators are—including an article recently by Jessica Matthews—that that has been turned over to the private sector, and that the price we are paying through the private sector regime for that HEU, highly enriched uranium, has basically caused great disdain in Moscow, and that whole deal is about to come apart.

If that article is anywhere near correct, and if our government is anywhere near as lax in supervising that, it seems to me that is fundamentally against our interests, both because of proliferation of highly enriched uranium and also because if we are going to ask the Russians to restrain themselves on things like selling Iranian—Iran-Iraq reactors and selling conventional arms to Libya and other unstable regimes as we view it, then they have to have some source of revenue, and it seems to me that is something we need to pay very close attention to.

Of course, the indication from the article by a very responsible observer was that our government has kind of gone to sleep on that. Is that in your Department?

Dr. WALLERSTEIN. That general issue is certainly within the broad range of responsibility of Dr. Ashton Carter, Assistant Secretary of Defense for International Security Policy. I can tell you that issue has been given very high level attention just within the last few weeks, and it is still under discussion. You are correct that the U.S. Energy Corporation is being privatized and that there are some questions of——

Senator NUNN. Well, my point is that we have interests here that go far beyond simply a private business deal. I know we want to minimize the cost to the government, but there is a lot at stake here.

There is a lot at stake in terms of nonproliferation, and there is psychologically a lot at stake as to whether Russia is going to feel it is in their interests to play any kind of game, or whether they ought to just basically unleash some of the people over there, and there are, I have met with them, that want to basically promote exports of any kind, anywhere, anytime, to anybody, and that is a tough one when you are going broke.

You know, in this country, when companies are under financial pressure, there is a huge effort to pressure for being able to sell and to be able to get licenses to even unstable regimes, and you can imagine what it is like with a country going broke, so it seems to me we have to have a national interest here that does not get departmentalized, that somebody looks at it from a broader aspect and puts the various pieces together, and I sense not just by the General Accounting Office report on this departmental jurisdiction, but I sense in the broader aspects that the strategy is not being looked at in a broad way.

I have tremendous confidence in Ash Carter and his view, but he has to have his counterparts in State and Commerce and others that are working on one team, and I do not sense that is happening.

It seems to me that one of the most fundamental parts of the nonproliferation strategy, which was the purchase of that highly enriched uranium from the Ukraine and Russia, which had a great deal to do with the whole effort to get Ukraine to not be a nuclear State—I mean, this is big stakes. This is not small potatoes. This is big stuff.

We had one country that was debating very heavily within their own country about whether to give up nuclear weapons. The HEU agreement was a fundamental part of that, and if we have gone to sleep on it, it is deeply distressing. I say if we have. I have made no judgment, but I would hope that you would take that message back, and I would hope that people in State and Commerce would also pay some attention, as well as the National Security Council. There is a lot at stake here.

Dr. WALLERSTEIN. I hear your message loud and clear, Senator, and I will see that it gets reported back right away.

Senator NUNN. Thank you.

Senator SMITH. Thank you, Senator Nunn. There just seem to be so many inconsistencies between some of the things that are being said here and the facts as I know them, I just want to try to get some of these things clarified. I was somewhat—I do not want to say amused, because this is not an amusing subject, Dr. Davis, you indicated that former Secretary of Defense Aspin had started the process to develop the counter proliferation initiative.

The chances that U.S. forces are going to face some of these weapons and some of this technology in the future, assuming we are in some type of a confrontational mode with somebody—I hope it does not happen, but if that were to happen, the chances of them facing our own technology is extremely high. I am not sure that

$108 billion—or $108 million, excuse me, that the Department requested this year will even scratch the surface of the technologies or systems that we are going to need to overcome the technological advantage we are giving away. It is a bit disingenuous of the former Secretary to—well, respond?

Dr. DAVIS. Yes, sir. There seems to be a contradiction on the face of it. I think there is——

Senator SMITH. I think there is a contradiction.

Dr. DAVIS [continuing]. One other component to the strategy that I think has not come up yet, and I am not sure that it resolves the contradiction, but the logic goes that if U.S. high tech firms are unburdened by the licensing process and are released from their responsibilities under the current export control system, they will then become more competitive, more profitable, and will have more resources available to do research and development. By staying on the cutting edge of technology through research and development, they would make that technology available to our military forces, and thereby maintain a technological lead.

Senator SMITH. Sure, I understand the argument, but given a relatively stable Defense budget over the next 7 years, if we are lucky, with no inflationary growth at all, we are going to have to invest heavily just to stay ahead of the technology which has been exported. Anybody disagree with that? Where do we get the money to stay ahead? We are barely able to maintain operational readiness, let alone new technology.

Dr. DAVIS. Perhaps from the private sector.

Senator SMITH. A brief response.

Dr. WALLERSTEIN. Yes. Just one clarification for the record, and then I will turn it over to Mr. Volkman, who I think may wish to comment on this as well. That is to say that the dollar figure that you cited, Senator, was actually a plus-up of the budget meant to jump start a number of initiatives that we felt were very urgent.

The actual number, if you include all of the programs that the services already had ongoing that relate to proliferation is well over $3 billion, so it is a much more significant figure as a result.

Senator SMITH. To me—you know, I do not want to be humorous about this, but it is the equivalent of putting a couple of foxes in the henhouse and then running out and getting a trap to get the foxes after you put them in the henhouse. I mean, you are exporting technology—you are contributing to the problem and then forcing yourself to react to it. That is the way I read it. I do not know that it is deliberately intended here, but I mean, I think that is the result.

Dr. WALLERSTEIN. I understand the dilemma that you are characterizing.

Senator SMITH. In a few moments, I want to get to some specific areas that I am concerned about, but Mr. Volkman, do you have a comment on that?

Mr. VOLKMAN. No. I would only say that obviously we are making investments. We do, as part of our dual-use strategy, intend to take advantage of the commercial marketplace to stay ahead, and of course in combination with that, if you will, running faster, the export controls that Dr. Wallerstein imposes, a combination of

those two things, we think that we will maintain our lead, our superiority.

Senator SMITH. Well, Dr. Wallerstein in an earlier response to my question you talked about the sanctions, Category I and II sanctions, that had worked successfully on Russia and China. The Export Administration Act proposal sent up by the administration last year in effect does away with them, does away with Category I and II sanctions, does it not?

Senator BINGAMAN. The proposal.

Senator SMITH. The proposal that the administration is making does away with Category I and II sanctions, so if they are successful, why do you want to do away with them? I mean, I am having trouble understanding the logic here.

Dr. WALLERSTEIN. Senator, I am afraid I am not following your question, either, because I am not aware that we explicitly did away with Category I and II sanctions as part of the proposed Export Administration Act last year.

Senator SMITH. Well, you are going to be depending on Commerce a lot more than the Department of Defense in that proposal, and it was in the proposed bill.

Dr. WALLERSTEIN. Well, we will certainly check on that, and we will get you a response for the record, but that certainly was not our intention.

[The information follows:]

The administration proposal supplied to Congress in February 1994 contained sanctions language that attempted to harmonize missile technology-related and CBW-related sanctions in current law. That proposal in no way represented an attempt to away with category I and category II missile technology-related sanctions. However, due to the confusion and misunderstanding that this proposal met, the latest administration EAA proposal does not attempt to change existing sanction laws.

Senator SMITH. I think you had better read the proposed EAA bill. I do not mean to focus specifically on Dr. Wallerstein. Anyone else may respond, but let me focus on four areas, submarine, stealth technology, satellites, and nuclear reactors, all in the context of what we are talking about, and just a quick response.

I mean, we are leaning on Russia about transferring nuclear reactors to Iran at the same time we are providing nuclear reactors to North Korea. Isn't the truth of the matter that both transfers are wrong?

Dr. WALLERSTEIN. My response to that, Senator, is that you have to look again at each case on a case-by-case basis. The situation we faced in the situation in North Korea was a program that was obviously very far advanced, where we had the real possibility that actual fabrication of weapons may have occurred, or might be about to occur. What we have sought to do in the case of Korea is to find a solution that not only removes that threat but also removes the capability of the North Korean Government to develop a nuclear weapons program.

Senator SMITH. I think the controls are so vague that I do not think you can indicate that you are going to be able to monitor that. I mean, that is pretty obvious. You are not exactly free roaming around North Korea these days.

Dr. WALLERSTEIN. North Korea is, of course, probably the hardest case that there is on the face of the earth, given how closed

their society is. They developed a nuclear power program virtually on an indigenous basis, with some early help from the then Soviet Union.

In the case of Iran, the situation is quite different. This is a program that is in the early stage of development. There is no capability at the present time, and what we have been seeking to do, is to block the development of that capability.

Senator SMITH. Well, what I am—I guess it is obvious there is editorial content in my questions here, but my concern is that the Department of Defense needs—I do not think you are being aggressive enough in speaking up to Commerce on these issues. I use the reactor issue. I use the submarine question as examples.

We have been presented with briefing after briefing after briefing saying that submarines are being proliferated around the world, the technology. We are selling it everywhere. How do you—what is the justification for that?

I mean, we want to build—there is a request from the administration to build another *Seawolf*. We want the follow-on technology to the *Seawolf* with more submarines to be built. We are closing submarine yards, repair yards, and here is technology being spread—we are selling the technology. If it is a problem, why are we selling the technology?

Dr. WALLERSTEIN. Again, I would point out we try to deal with each case on a case-by-case basis. We involve the Joint Staff and we involve the intelligence community in assessing each particular proposed sale to see if there is going to be an adverse impact on U.S. security. In the case of submarine technology, you may be referring specifically to the Russian sale of Kilo-class subs to Iran. We have been concerned with this, and it has been a subject of extensive interaction with the Russian Government.

Senator SMITH. Have the Joint Chiefs of Staff recommended to you that we sell submarine technology around the world? Yes or no.

Dr. WALLERSTEIN. The Joint Chiefs of Staff have concurred on every decision that we have made in terms of the position that DOD has taken.

Senator SMITH. So they concurred. Your testimony is, the Joint Chiefs of Staff concur with selling submarine technology, including stealthy technology, submarine technology around the world. They concur with that. That is your testimony.

Dr. WALLERSTEIN. My testimony is that if you give me a specific case, Senator, I will be glad to comment on our disposition of that case. We do not deal generically with these issues. We deal on a case-by-case basis.

Senator SMITH. In the area of satellites, how are we restricting access to satellite data that could be used against us? In what specific ways are we restricting that? Are we restricting it?

Dr. WALLERSTEIN. Yes, we are. Satellite technology is divided between the munitions list and the commodity control list, depending on the nature of the satellite.

At this point I would like to call on Mr. Wilson to comment on that.

Senator SMITH. Just identify yourself for the record, sir, please.

Mr. WILSON. I am Craig Wilson, Director of Intelligence Policy, Office of the Secretary of Defense, and one of our jobs is to do for the Secretary what we need to do to implement delaying a remote sensing act.

We take a look at all of the applications for all of the technologies or products associated with remote sensing. We do work with Commerce and State and the intelligence community in a coordinated response to any license application or agreement for distribution of those systems or products, and we contribute to and are guided by the U.S. munitions list for the identification of crown jewel technologies or products and we withhold license, or vote against license applications, or vote against the disposition of certain agreements based on those technologies that we hold precious to the intelligence community in particular.

Senator SMITH. In the examples that I gave regarding satellites, submarines, nuclear reactors, and the other associated stealth technology, has this been—whether they are generic transfers or individual case-by-case transfers as you referred to, is there dissent in the Department of Defense at any level, at the policy level or the Joint Chiefs level?

Without mentioning names, has anyone dissented from those decisions, either generically or on a case-by-case basis, with any of these transfers?

Mr. WILSON. We have voted against—DOD in coordination with our office—I work for the Assistant Secretary of Command, Control, and Communications, and in accordance with the—in coordination with the Under Secretary of Policy and the Joint Chiefs of Staff, I have disagreed on certain license applications and voted against those which in fact were eventually turned down for certain satellite systems and technologies associated, we think were associated, could be associated with sensitive military capabilities, and DOD, Department of Commerce supported that vote and the Department of State supported that vote.

Dr. WALLERSTEIN. And if I may add to that, Senator, certainly on many individual cases DOD does take a dissenting position.

Now, again, these decisions are made on licensing on an interagency basis at the Assistant Secretary level, which is the key point. On difficult cases, the matter is referred to the Advisory Committee on Export Control Policy. That is where the tough cases are decided, generally, and we do occasionally take dissenting positions, again after consulting extensively with the various elements of the Department.

Senator SMITH. Well—I will defer to Senator Bingaman in just a second. Let me just ask, you know, you are asking for specifics. I mean, you essentially challenged me back in a question to provide you with a case-by-case and you will answer the question, so I will do that. Did the Joint Staff concur with the sale of the aircraft carrier to China, one of our aircraft carriers to China, even though it was for junk? Did the Joint Staff approve of that?

Dr. WALLERSTEIN. I would be glad to answer that for the record, Senator. I do not recall the Joint Staff position. But as I recall the generalities of the case, there were no particular military equities that they judged to be at risk, since the ship was to be broken up for scrap.

[The information follows:]

There has been no sale of any U.S. aircraft carrier to China. If the question refers to the sale of the *Bennington* to India in 1995 (with India making use of a Chinese tug), the Joint Staff was not involved in the decision because the transfer was to be for completion of scrapping only, since the carrier was almost completely demilitarized prior to leaving the United States. The *Bennington* was not a functional aircraft carrier, because the superstructure and weapons had been removed.

Senator SMITH. What about the Garrett engine to China?

Dr. WALLERSTEIN. The Garrett engine case I am certainly well familiar with. What is your specific concern about that?

Senator SMITH. Did the Joint Staff approve of that?

Dr. WALLERSTEIN. The Joint Staff was directly involved with that case, and they concurred with the position we adopted, which was and remains at this point only to approve the sale of a limited number of engines for use in jet trainers.

Senator SMITH. What about stealth technology to Germany for its cruise missile program?

Dr. WALLERSTEIN. Are you referring to the case that was referenced by our General Accounting Office colleague?

Senator SMITH. Yes.

Dr. WALLERSTEIN. I do not believe that we saw that case. That is exactly the point of the concern that was being raised, so I cannot comment on it.

Senator SMITH. Do you wish to comment on it?

Mr. COOPER. That is correct, and that is the problem that we have brought to light.

I might just add that on missile technology applications that are being licensed by Commerce, we just issued a report last month to a House committee, and that report was I think released a couple of days ago, and again, it is the same story, that we are finding that less than half of the applications that Commerce approved for missile technology exports to China were even seen by the Department of Defense or referred over for approval. So that is a real problem. I mean, the Department of Defense is not seeing a lot of the exports.

Senator SMITH. I am just amazed by that comment. I am shocked. I cannot tell you how shocked I am just to hear it said. I mean, you know, this is the national security of the United States here, and you are not seeing, you are not approving—you are not seeing it, let alone approving it or disapproving?

Dr. WALLERSTEIN. If I may take a slightly different position from my colleague——

Senator SMITH. Sure.

Dr. WALLERSTEIN. I do not think it is accurate to say that we are not seeing a lot of cases. I think that there have been some cases, particularly those that fall into the domain of the Department of Commerce, that we have not seen.

We are now being much more aggressive, as I mentioned in my statement, in insisting that we have a more open process, so that we will have the right to ask to see virtually any case. Many of these cases are handled on a routine basis, and in general the agencies of the government I believe manage this matter in a responsible fashion. You have identified some cases that were not

handled in an appropriate fashion, as the GAO report also has indicated, and we are intending to take steps to correct that.

Senator SMITH. I have gone way over my time. Senator Bingaman. I did have one more, but——

Senator BINGAMAN. Go ahead. Go ahead.

Senator SMITH. Along the same line, is the Department of Defense going to try to maintain and exercise its veto over any items off the State Department munitions list over to the Commerce commodity list?

Dr. WALLERSTEIN. Are we intending to exercise a veto on that?

Senator SMITH. Yes.

Dr. WALLERSTEIN. We are part of a process that takes up each proposed transfer and looks at it on a case-by-case basis, and we have weighed in on a number of cases when we believe that the items should remain on the munitions list.

Senator SMITH. But yet you insist on reviewing a case, but if Commerce does not send it to you, how can you review it? I mean, I am having a hard time understanding the process here. I do not know what the process is.

Dr. WALLERSTEIN. Well, in the case of transfer, sir, from the munitions list to the commodity control list, the process is managed by the Department of State, and we have a good relationship with the Department of State on these matters.

Senator SMITH. Sure.

Dr. WALLERSTEIN. And we believe that we are fully aware of all of the cases of so-called commodities jurisdiction determination.

Senator SMITH. And many in State and Defense have some serious concerns with what Commerce is doing, is that not correct? I mean, it is not a unanimous conclusion in your Department on some of these transfers, is it?

Dr. WALLERSTEIN. But again, to clarify, the Commerce Department has no authority to transfer an item from the munitions list to the commodity control list. That authority is vested in the Secretary of State. The Commerce Department only has the ability to act on items that are on its control list, the commodity control list, and that is where the problem has been that has been identified by the General Accounting Office, which we will seek to correct.

Senator SMITH. Thank you.

Senator BINGAMAN. Let me see if I have lit upon one of the problems here.

In this missile technology control law, title XVII of the Fiscal Year 1991 Defense Authorization Act that we passed, it says that determination by the Secretary—that is the Secretary of Commerce, as I understand it—to approve an export license for the export of goods or technology to a country of concern regarding missile proliferation may be made only after consultation with the Secretary of Defense and the Secretary of State for a period of 20 days.

Now, you are saying, as I understand the testimony here, that there are instances where that is being violated. Is that correct?

Dr. WALLERSTEIN. We were referring, Senator, specifically to the cases involving the stealth technology. I am not aware that there have been specific problems with respect to missile technology export.

Senator BINGAMAN. Let me ask Mr. Cooper. I thought that you had said there were similar cases in the area of missile technology.

Mr. COOPER. Yes. The report that we issued last month identifies missile technology exports approved by Commerce that Defense never saw. One of the problems, and it starts getting into what is a munitions list item and what is a CCL item, but a lot of this, and I can refer back to the document here that—I mean, I do not know how anybody can misunderstand.

Senator BINGAMAN. But this refers to a CCL item.

Mr. COOPER. Right. Right. Let me just, on the cruise missile issue—just to give you an idea—this is a document the company sent to the State Department once it got out in the public that the export license had been approved, and this is part of the commodity jurisdiction exercise that State and Commerce and Defense jointly go through.

This document talks about—and this is on the letterhead of the company signed by the chief executive officer, and it goes on talking about the description of the commodity that is being asked to be exported, and the origin of the commodity is where I want to read from.

It says, "the item originally designed for defeating the Patriot and Hawk antiaircraft radar system and Longbow radar." Now, that should have caught somebody's attention. [Laughter.]

Commerce should not be making that call.

Senator BINGAMAN. Yes. I guess to get back to my question here, it says here that if it is a country of concern regarding missile proliferation, that the Secretary of Commerce can only approve a license, an export license after consultation with the Secretary of Defense and the Secretary of State for a period of 20 days. That is what the law says, so Mr. Cooper, are you saying that they are violating the law?

Mr. COOPER. I am not sure I would go that far. What I am saying is——

Senator BINGAMAN. Well, why not?

Mr. COOPER. The facts show in this case that certainly the application, the export application made by the company was not referred over to the Department of Defense.

Senator BINGAMAN. Is there a clear agreement as to which are the countries of concern?

This says, "the countries of concern referred to in the previous sentence shall be maintained on a classified list by the Secretary of State in consultation with the Secretaries of Commerce and Defense." Is there agreement on that?

Dr. WALLERSTEIN. Yes, there is, Senator.

Senator BINGAMAN. So you have that list.

Dr. WALLERSTEIN. Yes, and so does the Commerce Department.

Senator BINGAMAN. Commerce has the same list, and State has the same list, everybody has the same list, so it ought to be clear that that ought to be one way to sort of flag things, you know. If we are selling things that relate to missiles to these countries on this list, we need to include DOD and Department of State in the discussion.

Mr. COOPER. I think some of the problems that we saw, and it gets back to the fact that there is concern beyond that list of coun-

tries, and as our report points out I think in the appendices, it shows some applications for stealth commodities relating to manufacturing golf clubs using the composite materials. Because it went to one of those countries on the list, that application got referred over to the Department of Defense for review.

However, there were other applications that were for ship applications, the cruise missile, and because it was not going to one of those countries, it did not automatically get referred over according to the procedures I think you are referring to.

Senator BINGAMAN. Okay. Let me just ask very briefly, there's another issue of commercial imaging technology. We have been urging that the United States begin negotiations with the French and the Russians on the issue of high resolution imaging satellites to protect our deployed troops from foreign high resolution satellites. Is that something that is being considered? Anything happening on that front?

Dr. WALLERSTEIN. Yes, it is, Senator. Let me ask Mr. Wilson to respond.

Mr. WILSON. We have a process in reviewing license applications and in approving the agreements that assures, in accordance with the Land Remote Sensing Act, the provisions of the Remote Sensing Act and the Presidential decision directive, PDD 23, on sensitive remote sensing, commercial opportunities overseas, that assures U.S. Government access to any systems that the United States would sell, or products it would sell, for the purpose of canceling any imagery, in the event of any national security event, that the Secretary of Defense would advise the Secretary of Commerce and Secretary of State to shut down such a system.

Senator BINGAMAN. I was asking about the Russians and the French, whether we are negotiating with them to be sure they are not doing anything here.

Mr. WILSON. No, we have not been in negotiation with them on that.

Senator BINGAMAN. Is there any consideration of doing that?

Mr. WILSON. Yes. We have had discussion with several governments. I cannot report that we have with the Russians, but we have had discussions with several governments that have current or near future imaging satellites at a level of resolution capability that is of concern to us, and we have asked these countries to discuss their capabilities with other countries in the world, and have offered the United States to be a broker in that process.

Senator BINGAMAN. As I understand current law, it requires an imaged state receive any images taken of it on a timely basis and at fair market value. Are you familiar with the legal requirements that I am referring to there?

Mr. WILSON. I am aware of the provision of the law, but I do not think that there is necessarily a requirement that any imaged state must receive that imagery. Various of the systems are sold to regional operators who act as a distribution center for a particular region for that particular site, and we have not had any level of experience with this so far because none of the systems have in fact been sold and implemented abroad, but the law——

Senator BINGAMAN. I guess what I am trying to get at is, there is a gentleman named Mr. Gupta—do you know about him?—at

Lawrence Livermore Laboratory, who has recommended that we change the law. He believes that we should repeal the requirement for images with a resolution of less than 5 meters from being made available.

For example, as I understand it, if Saudi Arabia images Iraq or Iran, these countries would have the right under present law to receive copies of any images that were taken.

Mr. WILSON. They could purchase those on agreement with the country. However, if it is a product of a sale of a U.S. system, the United States in review of the application does have some control on secondary dissemination of the imagery, and to what country, so it may not be available to—imagery collected in Saudi Arabia, for example, under an agreement with the U.S. and Saudi company, may not be available to one of those countries if it is a part of the agreement provision that it would not have secondary dissemination to one of those States.

Senator BINGAMAN. So you do not agree with Mr. Gupta that there ought to be a change in the law?

Mr. WILSON. Not necessarily. The provision—I am familiar with this article, and that there has been discussions between our Department, the intelligence community, Commerce and State with members of the staff on a possible requirement and a change in the law, and of course if that is the case, I am sure the presidential directive will reflect that and all the Departments will comply.

Currently, however, for example the provision of holding, pulling back the 5 meter resolution capability may be a little unrealistic, because we are in effect staying in competition with other world systems that have gone way below that. The other countries are flying systems at 1½ and less than 1½ meter resolution. The prospect of the law and the Presidential decision directive was to allow U.S. commercial opportunities to in fact be competitive on world market sales with those kinds of systems.

Senator BINGAMAN. Well, maybe, Mr. Chairman, if it is possible, I would be anxious to just have some clarification in writing as to what you believe the reality is, or the requirements are now for the sharing of these images with a country that has been imaged. I mean, I think that is pretty relevant to a lot of the activities that go on in the Middle East these days.

Mr. WILSON. Yes, sir.

Senator BINGAMAN. Thank you very much, Mr. Chairman.

Senator SMITH. In response to Senator Bingaman, we can leave the record open until May 25 for responses back, and also leave the record open for the next week for any Member who might wish to ask any further questions.

Senator SMITH. Senator Nunn.

Senator NUNN. You may have already answered this, but just one question. Our allies worked with us on conventional technology control for a long time. Do our allies, particularly the Europeans and Japanese, have any updated methods of controlling dual-use technology?

Dr. WALLERSTEIN. Well, let me comment in response to that, Senator, about the point made earlier on the Enhanced Proliferation Control Initiative. As was noted, during the Bush administration a regulation was promulgated which effectively provided the

United States with a catch-all provision where even for technology which had been decontrolled, we could still require an individual validated license if there was reason to suspect that the item was going to contribute to a system related to a weapon of mass destruction or other threatening system.

Since that time, a number of other governments have moved to adopt relatively similar procedures, including Japan and Germany and the European Union. The EU now has a much larger responsibility for export controls within the European Community, and it also now has a catch-all provision.

Senator NUNN. Do our friends in Eastern Europe, are they beginning to work on export controls? Is that part of the Partnership for Peace? Is that part of the NATO consideration in terms of enlargement?

Dr. WALLERSTEIN. Yes. We have been working with many of the States of Eastern Europe, and many of them have made enormous progress. In fact, we have already announced our support for the participation of Hungary in the discussion on the successor regime to COCOM. We believe that a number of other States in East Europe, including Poland and the Czech Republic, will likely also qualify very shortly for such participation, so they have made substantial progress. Obviously, these countries are at different stages of advancement in that work.

Senator NUNN. Okay. Thank you.

Senator SMITH. Just a couple more points. To follow up Senator Nunn's point. Isn't the problem we cannot seem to decide who the enemy is regarding COCOM, and the Europeans want to sell to Iran and Iraq. Japan does, certainly Germany does. How do we deal with that? Isn't this the problem? It is where the materials go after they go to Japan, Germany, Frances, other nations, is it not? Who is the enemy?

Dr. DAVIS. Their lists of rogue nations do not match up exactly with ours.

Senator SMITH. It is not like two countries, or two armies on a battlefield?

Dr. DAVIS. The members of the regime do not share the same threat perception.

Dr. WALLERSTEIN. It is worth pointing out that COCOM, Senator, never addressed exports to States other than the former Soviet Union, other members of the Warsaw Treaty Organization, and China. It never addressed at all the question of exports to so-called states of proliferation concern. This is an entirely new effort that we have had to negotiate with our partners.

Senator SMITH. Let me ask you a quick question because it is so much in the news these days on terrorism. Is there anything that we are doing or need to do in the area of export licensing regarding terrorism, or terrorism materials, or technology of any kind?

Dr. WALLERSTEIN. I have a couple of comments on that. The Chemical Weapons Convention, when it enters into force, will be helpful in making it much more difficult for terrorist organizations to obtain the items that they need to make chemical weapons. But it is clear that the volume of the necessary precursors that a terrorist group would need is significantly smaller than that which would

be used by a State if it were seeking to develop a military capability, so it is a difficult tracking problem.

I would note that, in the case of the recent attack in the Tokyo subways—and, of course, this is still under investigation—the items in question that were the precursors for the sarin, did not move in international commerce. They apparently were obtained within Japan. If that turns out to be the case, export controls would not have been effective in catching that kind of terrorist activity.

Senator SMITH. On that subject, there was a news story this morning that apparently according to this story, a terrorist group had tested that substance on sheep. Do you have any information on that, that they went to that length to run a test on sheep in the outback country somewhere. I do not know where it was. I did not hear.

Dr. WALLERSTEIN. No, sir. I have no information on that.

Senator SMITH. I might also point out in this particular area of control on materials for terrorism, I certainly sympathize with you, because I read—heard again this morning that our friend Mr. Cochran of O.J. Simpson trial fame now has several clients from the bombing and is suing the fertilizer manufacturer for not having fertilizer that is bomb-proof, or words to that effect.

We better hurry up with the product liability——

Dr. WALLERSTEIN. A good example of dual-use technology, Senator.

Senator SMITH. Yes. [Laughter.]

Well, really, I just want to make one final point. You mention a lot of reference here to State and Defense in terms of the decisions that are made regarding—with Commerce and what goes on the list and what goes off the list and so forth.

I think those of you in the Department of Defense who are notoriously differing with State ought to look real hard at the State Department's policy now of essentially—I mean, placing economic, great emphasis on economic security, trade, perhaps even more than national security.

There is great focus on economic security here. I think that is a critical issue. You cannot serve two masters, and you know, the Department of Defense's responsibility is to be forceful and strong in what needs to be controlled, not only for national security, but I think also in the sense, looking at the fact that over the next several years, which we talked about before, the budget is under severe constraints, and we are going to have to be playing catch-up with ourselves. I am not sure we are going to be able to do it.

So I think slowing down the technology helps our national security. It may hurt some in the business field, but national security comes first. I do not need to remind you of that, I am sure.

Does anybody have any other comment or question that they want to make? If not, thank you very much for your testimony this morning. We appreciate your coming. Again, I will repeat, the record will be open for a week for Senators to present questions and another week beyond that, to May 25, for anyone who wishes, for the responses to be given for the record.

Thank you. The hearing is adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR STROM THURMOND

IMPACT OF EXPORTS OF DUAL-USE TECHNOLOGIES ON THE PROLIFERATION OF WEAPONS OF MASS DESTRUCTION

Senator THURMOND. Dr. Wallerstein, has the Department of Defense conducted an assessment of the impact stemming the spread of weapons of mass destruction and advanced conventional weapons; if so, what are those assessments?

Dr. WALLERSTEIN. The Interagency export control team, including the Department of Defense, continually assesses the nature and effectiveness of export controls. In this process, the Department of Defense considers the effect of any change in controls on the full range of U.S. national security interests, including the spread of weapons of mass destruction and advanced conventional weapons. For further information, I would refer you to a paper entitled "Report on Effect of Increased Use of Dual-Use Technologies on Ability to Control Exports" which the Department of Defense submitted to Congress under the provisions of Title XIV, Subtitle C, Section 1422 of the National Defense Authorization Act of 1994.

Senator THURMOND. Dr. Wallerstein, some of the most significant national security threats we may face may be from technologies primarily appropriate for use in terrorist attacks against vulnerable points in our commercial infrastructure including information networks. Where do these threats fit in the current process for developing export control regimes?

Dr. WALLERSTEIN. The United States is devoting particular attention to national and multinational export controls against "rogue" governments, particularly those that sponsor international terrorism. However, we should be mindful that export controls cannot address all problems with terrorist access to dangerous technologies and products. This is particularly true when items can be purchased domestically which was the case in both the Tokyo subway and Oklahoma City incidents.

Senator THURMOND. Dr. Wallerstein, a report released by the Carnegie Foundation indicates that China has been helping Pakistan build an unsafeguarded plutonium production reactor in violation of the Nuclear Nonproliferation Treaty and the Nuclear Suppliers Group guidelines. Why hasn't the United States sanction China?

Dr. WALLERSTEIN. The intelligence community would need to either confirm or deny the Carnegie information about China and Pakistan. However, if this information were true, and if the U.S.-China nuclear cooperation agreement were in force, China's reported activities could fall under Section 129 of the Atomic Energy Act of 1954, as amended, "Conduct Resulting in Termination of Nuclear Exports." While the U.S. Government has not implemented any programs under this framework, the administration would need to make a determination as to whether to terminate the agreement based on the available evidence.

Senator THURMOND. Dr. Wallerstein, the CIA and the DIA have publicly confirmed that the North Koreans shipped approximately four SCUD TEL units to Iran. This shipment clearly exceeds MTCR guidelines, which State officials have claimed they want North Korea to adhere to. Did the Department of Defense recommend that any specific action be taken to address this North Korean shipment of nuclear capable missile technology?

Dr. WALLERSTEIN. The Department of Defense is participating with other agencies to review this matter in order to determine whether activity has occurred that would require the imposition of sanctions under U.S. law.

Senator THURMOND. Dr. Wallerstein, in September 1993 the White House announced that it would examine if space launch vehicles could be safeguarded sufficiently to allow exports of such technology. Does the Department of Defense believe that space launch vehicles can be safeguarded in a fashion that can provide timely warning of a diversion of rocket technology for military purposes?

Dr. WALLERSTEIN. The Department of Defense notes that the administration indicated in a September 27, 1993 Fact Sheet released by the White House Office of the Press Secretary that it would review whether additional constraints or safeguards could reduce the risk of misuse of space launch technology. We are not aware of the outcome of such a study. The infrastructure that supports a Space Launch Vehicle program can also support most of the elements of a military missile program. Given the nature of the technology, the indicators of timely warning would be observed testing of items of a purely military nature, such as, reentry vehicle tests or mobile missile developments.

Senator THURMOND. Dr. Wallerstein, in April 1994, *International Defense Review* published a piece "U.S. Satellites to China: Unseen Proliferation Concerns," that indicated that U.S. firms were discussing with China the possibility of China launching Motorola Iridium small satellites off a Chinese launcher that would use a smart satellite dispenser yet to be developed. This dispenser would use technology very

similar to that needed to develop a multiple independently targeted reentry vehicle (MIRV). The concern raised in the article was that American firms might be tempted to validate the design of the smart satellite dispenser to assure a successful launch. The article also noted that American firms interested in having China use a yet to be developed kick motor to launch U.S. satellites wanted to certify the propellant for these motors even though this would make China's military solid-rockets more reliable and efficient than the current first-generation solid rocket propellants permit. Finally, the article warned about the possible military value of U.S.-Chinese satellite analytical cooperation on such issues as load-coupling, attitude control, spin release, stage separation, and integration in general. Does the Department of Defense favor such technology transfers? What is it doing to prevent them?

Dr. WALLERSTEIN. The Department of Defense is responsible for managing the Space Launch Technology Safeguards Program which monitors all technical meetings with U.S. contractors and approves the release of technical data for all programs involving the launch of U.S. satellites by China. This program is designed to prevent the transfer of technology that would assist China in developing missile and related military capabilities. On your iridium question, we do not believe that the iridium dispenser involves MIRV technology.

Senator THURMOND. Dr. Davis, how can the United States guard against the development of nuclear weapons by countries of concern, and export or license increasing levels of technology?

Dr. DAVIS. Expanding exports of sensitive technology by the United States and other countries increases the risk that such exports may be used to develop nuclear weapons and other WMD. To guard against that risk, the U.S. export control system allows national security experts with WMD expertise to evaluate license applications for sensitive items. Much of this expertise is concentrated at the Department of Defense and the Department of Energy. Further relaxing of licensing requirements and/or scaling back of the inter-agency review process would allow more sensitive technology to be exported without adequate consideration of potential national security consequences.

The United States and other countries have often put conditions on how dual-use technology is used by the buyers. Certain uses are prohibited. Unfortunately, assurances that U.S. exports will not be diverted to unauthorized military uses are seldom verified. A GAO report released in April 1994 found many examples of nuclear, dual-use exports *to sensitive destinations in controlled countries*, with little verification of how those exports were used (*Nuclear Nonproliferation: Export Licensing Procedures for Dual-Use Items Need To Be Strengthened*, GAO/NSIAD–94–119, April 1994). Improving the verification of end-uses for sensitive exports would help guard against mis-use or diversion to WMD. Other countries are even less informed than the United States about the ultimate uses of the sensitive technology they export.

To deter and detect diversions of nuclear materials and technology, the International Atomic Energy Agency (IAEA) conducts inspections of the declared nuclear inventories of the non-nuclear weapon members of the Nonproliferation Treaty (NPT). The IAEA has been strengthening its safeguards system to prevent another Iraq-type situation. Strong U.S. support is essential for strengthening the IAEA safeguards system, which provides a first line of defense against the diversion of nuclear materials and technology.

QUESTIONS SUBMITTED BY SENATOR BOB SMITH

NONPROLIFERATION POLICY

Senator SMITH. Dr. Wallerstein, the President's September 1993 statement on nonproliferation and export policy maintained that the proliferation of weapons of mass destruction was a threat and that to encourage other nations not already members of arms control regimes, like the Missile Technology Control Regime (MTCR) to join and become members in good standing, that the United States would offer advanced technology as an incentive. I understood that advanced technology would only be offered once a country joined the arms control regimes and had proven themselves to be good members. With regard to the MTCR, would you consider Russia, China and Brazil to be members of good standing of this regime?

Dr. WALLERSTEIN. Russia, China, and Brazil are not currently members of the Missile Technology Control Regime (MTCR). However, Russia and China have been granted "membership in principle" status by the Regime partners. In addition, we have a bilateral MOU with Russia, and therefore consider Russia to be an adherent to the MTCR for the purposes of U.S. law. The United States supports early mem-

bership for all three of these countries once they have satisfied MTCR membership conditions and our own national criteria.

MILITARILY CRITICAL TECHNOLOGIES AND THE U.S. INDUSTRIAL BASE

Senator SMITH. Mr. Volkman, has the Department determined or assessed the militarily critical technologies and technologies in which the United States is the lead producer which the United States should control more closely with regard to exporting it to other countries which would enable them to develop their own technological base and then compete with U.S. companies?

Mr. VOLKMAN. The Department monitors very closely those technologies that are important to us and controls their export accordingly for national security reasons. Naturally, economic security issues are considered as an integral part of this process. At the same time, we are mindful of the fact that U.S. world leadership in militarily critical technologies derives from and is dependent upon essential investment in the U.S. technology base. For this reason, the Department has published "A Science and Technology Strategy and Plan" which serves as a guide to ensure that the resources provided to the Department are prudently invested in a way that supports future needs and ensures our competitive edge in these areas. Controlling the export of technology is effective only in the short term. In order to ensure our military superiority, we must invest in our technology base.

GAO REPORT ON EXPORT CONTROLS

Senator SMITH. Dr. Wallerstein, both Commerce and State formally commented on the General Accounting Office's report. Why didn't the Department of Defense provide official comments? What is the Department of Defense's position on this report? What does the Department of Defense plan to do about this?

Dr. WALLERSTEIN. The Department of Defense did not believe it was necessary to formally comment on a draft of the General Accounting Office report because we generally agreed with the substance of the report's conclusions. Currently, we are coordinating within the Department of Defense responses to General Accounting Office's two specific recommendations, and I expect that we will concur.

Senator SMITH. Dr. Wallerstein, how can the Defense Department plan to rely on technologies for their front line defense systems that are controlled by an agency which has as a primary mission the promotion of trade?

Dr. WALLERSTEIN. Congress has provided a regulatory framework for dual-use technologies that differs from the one for arms exports. The Department of Defense is a full partner along with the State and Commerce Departments in developing and implementing effective export controls for both munitions and dual-use items and technologies.

DOD REPORT ON EXPORT OF DUAL-USE TECHNOLOGIES

Senator SMITH. Dr. Wallerstein, the Department of Defense report on dual-use technology, dated February 1995, notes that the strategy has implications for export controls, foreign investment, and other policy concerns. What implications do you see for foreign investment in domestic dual-use industries relied upon by the Department of Defense?

Is the administration going to suggest that we relax Exon-Florio amendments to the Defense Production Act?

Similarly, is the administration going to suggest another round of decontrols for dual-use technologies?

Dr. WALLERSTEIN. We believe that the foreign investment review mechanisms now in place, including the Exon-Florio legislation, provide adequate information to administration decisionmakers to ensure that our dual-use interests and our economic security interests are appropriately considered.

In addition, we have determined, in a report provided to Congress on August 30, 1994 on "U.S. Critical Technology Companies," that direct foreign investment in U.S. high technology companies represents only 15 percent of all such foreign investment and that there is no evidence of a coordinated foreign strategy to control or dominate high technology industries. Indeed, the amount of foreign investment roughly mirrors that of U.S. investment in high technology companies as a percentage of total investment. We welcome foreign investment in the United States as a means of strengthening the U.S. technological and industrial base.

The Department of Defense has no plans to recommend that the administration propose change to the "Exon-Florio" provisions of the Defense Production Act.

The Department of Defense, in cooperation with the export control regulating departments and other interested agencies, reviews export controls on dual-use technologies on a continuing and regular basis because of changes in the contributions

of these technologies to important military capabilities and the growing diffusion of technology globally.

U.S. DEFENSE CAPABILITIES

Senator SMITH. Dr. Wallerstein, the Department of Defense is spending billions of dollars to equip our military forces with the most technologically advanced weapons in the world. Yet our dual-use export laws, regulations and policies seem to undermine the technological lead we have spent so much to achieve. Has the Department of Defense considered the budgetary implications of its dual-use strategy and the export controls system?

Will we have to continually invest heavily to stay ahead of our own technology that has been exported so freely through the licensing systems?

Dr. WALLERSTEIN. The Department of Defense will continue to pursue a national defense strategy to ensure that important U.S. military advantages are preserved based primarily on three key elements. First, we will selectively modernize our military forces to ensure that we can continue to fight and win in two nearly simultaneous major regional conflicts. Second, we will continue our efforts to build coalitions with key friends and allies in support of our regional defense strategy. And, finally, we will continue to limit the transfer of defense related technologies in ways that are both effective and contribute to preserving our military technological advantages over any potential adversary.

MUNITIONS LIST VERSUS COMMERCE LIST

Senator SMITH. Dr. Wallerstein, would you agree with the statement in the General Accounting Office report that State Department controls under the Arms Export Control Act are more restrictive than Commerce regulations?

Dr. WALLERSTEIN. We agree that the Arms Export Control Act provides a more restrictive statutory framework than the statutory framework for dual-use export controls.

HOT ENGINE SECTION TECHNOLOGY TRANSFERRED TO MUNITIONS LIST

Senator SMITH. Mr. Volkman, I understand that the administration is considering a proposal to transfer responsibility for developmental aircraft and hot section engine technology from the State Department's munitions list to the Commerce Department's commodity list. Can you describe for the committee the proposal the administration is considering and the status of that proposal?

Mr. VOLKMAN. The State Department is taking the lead in conducting interagency discussions concerning the proper export jurisdictional control for developmental aircraft and "hot-section" engine technology. We anticipate that State will issue a draft Federal Register notice for government and industry review when these discussions are completed.

Senator SMITH. Dr. Wallerstein, what conditions have been put in place to safeguard hot-section engine technology in the Rolls Royce takeover of Allison Engines?

Dr. WALLERSTEIN. Allison Engine Company (Allison) and Allison Advanced Development Company (Advanced) were established to insulate from foreign control or influence the performance of contracts, and to protect from unauthorized dissemination to foreign nationals certain classified and controlled unclassified (e.g., hot-section technology) information. Top Secret and other proscribed classified and certain controlled unclassified technology and information (e.g., Department of Defense advanced engine research programs) were stipulated to be in Advanced under a Proxy Agreement. The remainder of the current programs and technology was placed under Allison which is regulated by a Special Security Agreement (SSA).

In addition to the safeguards provided by the Proxy Agreement and the SSA, Advanced and Allison each operate under a Technology Control Plan (TCP). Both TCPs provide further technology protections—including, in the case of Advanced, the Department of Defense approval of technology and program transfers to Allison. Additionally, critical turbine engine technology (e.g., "hot-section") is presumed to be ITAR-controlled, thereby requiring a State Department export license to foreign companies, including Rolls Royce.

STEALTH TECHNOLOGY

Senator SMITH. Dr. Wallerstein, the General Accounting Office has recommended that the Department of Defense work with the Departments of State and Commerce through the commodity jurisdiction procedure to remedy the situation whereby certain stealth items should be controlled by the International Traffic in Arms Regula-

tions (ITAR) and not by Commerce. Can you describe the commodity jurisdiction procedure to use and what the role of Defense is in that procedure?

Dr. WALLERSTEIN. The State Department's commodity jurisdiction procedure is used to make decisions as to whether or not an item falls within the ITAR's Munitions List. Currently, by Executive Order, the Department of Defense's review and concurrence is required before any change in jurisdiction can be effected between State and Commerce. For other details concerning CJ regulatory procedures, I would refer you to the State Department which has overall responsibility for the CJ determination process.

DEPARTMENT OF DEFENSE ROLE IN EXPORT LICENSE APPROVAL

Senator SMITH. Dr. Wallerstein, are you satisfied with the weight currently given to the Department of Defense views in the Commerce's commodity jurisdiction procedure?

Dr. WALLERSTEIN. While the Commerce Department does not have jurisdiction to determine whether an item is a defense article and therefore controlled under the ITAR, Commerce does have a so-called "commodity classification" procedure to advise exporters where an item under Commerce's jurisdiction would fall on the Commodity Control List and whether a license is required for export of the item. Commerce does not currently refer commodity classification actions to the Department of Defense for review as State does under the ITAR commodity jurisdiction process.

Senator SMITH. Dr. Wallerstein, do you know of any proposal that would change and enlarge Commerce's commodity jurisdiction procedure and reduce the Department of Defense's role?

Dr. WALLERSTEIN. While the Commerce Department does not have jurisdiction to determine whether an item is a defense article and therefore controlled under the ITAR, Commerce does have a so-called "commodity classification" procedure to advise exporters where an item under Commerce's jurisdiction would fall on the Commodity Control List and whether a license is required for export of the item. Commerce does not currently refer commodity classification actions to the Department of Defense for review as State does under the ITAR commodity jurisdiction process. We know of no proposal being considered within the executive branch that would reduce the Department of Defense's role.

TRANSFER OF SPACE, AND OTHER TECHNOLOGIES TO COMMERCE JURISDICTION

Senator SMITH. Dr. Wallerstein, is the administration considering any proposals to move space communications, remote sensing or navigation technologies from the control of the State Department to the Commerce Department?

Dr. WALLERSTEIN. With regard to communications satellites, an interagency technical working group chaired by the State Department is currently reviewing whether the characteristics specified on the U.S. Munitions List do in fact identify all communications satellites having significant military or intelligence capability. On remote sensing satellites, there is agreement within the administration on a framework for moving certain of these satellites from State to Commerce export control jurisdiction, and we anticipate regulatory implementation in the very near future.

Senator SMITH. What is the Department of Defense's view on whether these or any other items should be moved from State control to Commerce control?

Dr. WALLERSTEIN. The Department of Defense has been a full participant in these decisions. The Department of Defense will ensure that the military implications of any future proposed transfers from State to Commerce control are fully considered.

DOD ROLE IN REVIEW TECHNOLOGIES WHICH ARE MOVED FROM MUNITIONS LIST TO COMMERCE LIST

Senator SMITH. Dr. Wallerstein, can you assure the committee that the Department of Defense is going to maintain and exercise its veto over the movement of any items off the State Department munitions list to the Commerce commodity list and will use that veto in the future to protect stealth and other militarily sensitive technologies?

Dr. WALLERSTEIN. The Department of Defense has and will continue to maintain vigilance over the transfer of technology. The Department of Defense is an equal participant with Commerce and State on these decisions.

IMPACT OF EXPORTS OF DUAL-USE TECHNOLOGIES ON THE PROLIFERATION OF WEAPONS OF MASS DESTRUCTION

Senator SMITH. Dr. Wallerstein, has the Department of Defense conducted an assessment of the impact of technology decontrol and its effect on stemming the

spread of weapons of mass destruction and advanced conventional weapons; if so, what are those assessments?

Dr. WALLERSTEIN. The interagency export control team, including the Department of Defense, continually assesses the nature and effectiveness of export controls. In this process, the Department of Defense considers the effect of any change in controls on the full range of U.S. national security interests, including the spread of weapons of mass destruction and advanced conventional weapons. For further information, I would refer you to a paper entitled "Report on Effect of Increased Use of Dual-Use Technologies on Ability to Control Exports" which the Department of Defense submitted to Congress under the provisions of Title XIV, Subtitle C, Section 1422 of the National Defense Authorization Act of 1994.

MILITARY TECHNOLOGICAL REVOLUTION

Senator SMITH. Dr. Wallerstein, last Friday, the Subcommittee on Acquisition and Technology conducted a hearing on the so-called Revolution in Military Affairs. As you know, Admiral Owens, supported by Mr. Andrew Marshall, is leading an effort to flesh out the implications of a military revolution based on developments in deep precision strike and information technologies. To what extent are your evolving policies regarding export controls being driven by the concepts emerging from the revolution in military affairs assessments?

Dr. WALLERSTEIN. One of the chief purposes of export controls is to maintain the U.S. military technological advantage. To that end, the Department of Defense helps to develop and implement export control policies to protect those technologies necessary to maintain this advantage. The RMA is one important element informing the development of the Department of Defense views on export control policies.

Senator SMITH. Dr. Wallerstein, some of the most significant national security threats we may face may be from technologies primarily appropriate for use in terrorist attacks against vulnerable points in our commercial infrastructure including information networks. Where do these threats fit in the current process for developing export control regimes?

Dr. WALLERSTEIN. The United States is devoting particular attention to national and multinational export controls against "rogue" governments, particularly those that sponsor international terrorism. However, we should be mindful that export controls cannot address all problems with terrorist access to dangerous technologies and products. This is particularly true when items can be purchased domestically which was the case in both the Tokyo subway and Oklahoma City incidents.

Senator SMITH. Dr. Wallerstein, what is the administration doing to prevent the spread of satellites to nations who are hostile to the United States?

How are we restricting their access to satellite data that could be used against us?

Isn't it true that your counterproliferation regime will not prevent the spread of these systems and their information?

Dr. WALLERSTEIN. The licensing process for U.S. companies for marketing or for sale of satellites and/or select satellite component parts is reviewed by both the State Department and Department of Defense. Licensing decisions are made on a case-by-case basis, protecting U.S. national security and foreign policy through careful review of a number of factors including: the customer, the capabilities of the satellite or components, and availability of comparable capabilities in the world marketplace. In instances where we believe it is warranted, a recommendation to the State Department for a government to government agreement would be made. With respect to commercial remote sensing satellites, the United States is able to limit—including turn off—the satellites when U.S. national security or foreign policies may be compromised.

The Defense Counterproliferation Initiative is targeted at weapons of mass destruction—nuclear, chemical, and biological—and their delivery systems. Commercial remote sensing satellites are not directly related to the counterproliferation emphasis outlined above.

Senator SMITH. Dr. Wallerstein, how does the United States stop Iran or Iraq or North Korea from buying imagery from France, Russia, or someone else, that could then be used against us?

Dr. WALLERSTEIN. This question is a matter more appropriately addressed to the State Department. As the Secretary of Defense becomes aware of the sale of imagery to any of these states and that sale is deemed to have impact on national security, the Secretary of Defense would confer with the Secretary of State.

Senator SMITH. Dr. Wallerstein, while you state in your testimony that the Department of Defense has a comprehensive counterproliferation initiative to restrict the transfer of sensitive technologies, it seems to me that the Department of De-

fense is increasingly standing on the sidelines while the Commerce Department dictates what will be exported?

I am deeply concerned by these developments, and I want you to tell me just what exports the Department of Defense is reviewing and what they are not.

Have there been internal Department of Defense objections to technology transfers that were overruled or suppressed?

What were they and why?

When the administration considers dual use type exports, what is the driving issue—trade or national security?

How is this demonstrated when the Department of Defense is being overruled on sensitive exports?

Dr. WALLERSTEIN. The Department of Defense is an equal and active participant in the formulation of export control policy. Pursuant to interagency agreement, the Department of Defense is entitled to see those license applications that it determines warrant review because of proliferation or national security concerns. There are procedures in place for resolving differences, including referral to senior officials and, if necessary, to the President.

Senator SMITH. Dr. Wallerstein, the administration is painting a dire picture of the global submarine threat. But the truth is, our own technology that we spent billions developing is being sold abroad and ultimately used in submarines that could be used against us.

Explain how it makes sense to sell sensitive technologies for submarines when that technology transfer undermines our national security interests?

What is the Department or administration doing to prevent these transfers?

Dr. WALLERSTEIN. Technology connected with submarines or other important military systems is not transferred to nations that might use it against the United States. Moreover, the Department of Defense weighs carefully the possibility of illegal diversion before it consents to the transfer of any sensitive technology abroad.

Senator SMITH. Dr. Wallerstein, explain how the United States exerts influence to prevent Russia from selling nuclear reactors to Iran, when we are providing similar reactors to North Korea?

How can the administration say with a straight face that providing state of the art reactors to North Korea prevents them from developing nuclear weapons, but Russia's sale of reactors to Iran helps Iran develop nuclear weapons?

The Truth is that *both* transfers are dangerous and destabilizing. How can you state otherwise?

Dr. WALLERSTEIN. Although we are in disagreement regarding nuclear cooperation with Iran, our current bilateral relationship with Russia is very strong. Part of the strength of the relationship derives from existing security and economic programs—such as Nunn-Lugar and the United States purchase of highly enriched uranium—that are in the national security interests of both countries. We also have a number of planned and potential initiatives with Russia, including cooperation on improving nuclear safety, that are of great importance to both countries. The incentive of realizing these potential initiatives and the disincentive of adversely affecting current programs constitute significant levers of influence for the United States.

Regarding North Korea and Iran, the administration completely rejects the notion of a double standard. North Korea and Iran are two separate cases involving different proliferation risks; they should not be equated. In North Korea, we are engaged in a step-by-step process to bring the DPRK into full compliance with its IAEA commitments, and at the same time, to replace an existing plutonium production capability with less dangerous light water reactors. In contrast, we oppose Russia's nuclear cooperation with Iran because Iran does not now have nuclear technology and practical know-how. Iran is actively seeking nuclear weapons capability, and although the LWR technology is more proliferation-resistant than many other reactor types, the sale of LWRs will open channels for the acquisition of technology and know-how with a country that has ample resources in this area. The U.S. position is that any nuclear cooperation with Iran, civil or military, will contribute to the Iranian knowledge base and establish relationships that may be difficult to monitor or regulate.

In summary, in the case of North Korea, the United States is attempting to roll back an existing program and neutralize an already dangerous and destabilizing situation. In the case of Iran, the current knowledge and technology base cannot support Iranian nuclear ambitions and any transfer of technology or know-how has the potential to be dangerous and destabilizing.

Senator SMITH. Dr. Wallerstein, you stated that negotiations on a successor regime to COCOM have been ongoing for over a year. Why would you terminate COCOM before you had any agreement on or idea what the successor regime would be?

What are we doing in the meantime to control sensitive technology transfers?

Dr. WALLERSTEIN. COCOM was terminated because the conditions that warranted its establishment and continuation throughout the Cold War years—namely the East-West confrontation—no longer exist. A successor regime is being crafted to handle post-Cold War challenges and security threats. In the meantime, the United States as well as our former COCOM partners have agreed to continue to control the transfer of arms and sensitive dual-use commodities and technologies through our respective national systems. We remain confident that, on balance, our international partners are honoring these commitments.

Senator SMITH. Mr. Cooper, the problems you cite regarding Commerce's referral of licenses to the Defense Department are alarming—why would Commerce not want to share its licenses with Defense experts? Also, is this problem unique to stealth-related exports?

Mr. COOPER. Commerce has structured its referral procedures in a way that results in pre-screening and limiting the number and types of licenses sent to the Department of Defense for review. Some Commerce officials have noted to us that referring licenses to the Department of Defense delays their processing time.

In response to the second part of the question, the problem is longstanding and is not unique to stealth-related exports. We have raised this issue in several of our past reports—Commerce has not referred licenses to the Department of Defense for commodities relating to chemical and biological weapons, dual-use nuclear items, dual-use missile items, and other sensitive goods. The Commerce referral procedures and judgments of licensing officers may explain some of this, but the overall unwillingness to share licensing data with the Department of Defense and even with Customs for enforcement purposes is puzzling. We have been told that the Administration identified this as an issue and is developing an executive order that is designed to fix this problem. If properly constructed and implemented, it should improve the sharing and referral of licensing information between Commerce, Defense, and State.

Senator SMITH. Mr. Cooper, what explanation could Commerce possibly have for approving licenses for such high performance stealth coatings for a cruise missile without consulting with the State Department, Defense Department, or even asking themselves about whether these licenses belonged at the Commerce Department at all?

Mr. COOPER. Commerce's official comments on our report do not address the case that came to public light. When we met to discuss their comments, Commerce officials told us that in these cases, the licensing officer made a mistake. But during the commodity jurisdiction review of these coatings, Commerce disagreed with Defense and State and maintained that the coatings were dual use. So, we have not been given a reasonable explanation about what really drove Commerce decision-making on these cases. We would point out that these cases were a symptom of unclear jurisdiction over stealth-related commodities. They also highlight the risks involved. If jurisdiction was clarified between the control lists, there would be less chance for a licensing officer to make an inappropriate call on a sensitive case.

Senator SMITH. Mr. Cooper, according to your report, Commerce disagrees with your finding that jurisdiction over stealth technologies and items is unclear—how do you respond to their position?

Mr. COOPER. First, Commerce is the only agency that does not acknowledge that overlap exists in jurisdiction over stealth-related technologies. Second, Commerce cites the 1991 "rationalization" exercise as having resolved overlapping jurisdiction in the stealth technology area, but we demonstrate in our report that clarification of jurisdiction was apparently not fully achieved.

Senator SMITH. Mr. Cooper, the Defense Department recently approved the export of militarily-related and sophisticated machine tools to Chinese entities associated with strategic bomber and fighter production. In your opinion, what impact do you believe the export of this type of technology will have on the U.S. industrial base?

Mr. COOPER. While we are aware of the approved sale and export of the machine tools to China, we have not evaluated the impact of the sale on the U.S. industrial base.

Senator SMITH. Mr. Cooper, are you aware of how the executive agencies deal with diffusion of sensitive technologies to countries like China and Russia, for example, considering that it is increasingly difficult to distinguish between benign and bad end-users?

Mr. COOPER. In our recent report *Export Controls: Some Controls Over Missile-Related Technology Exports to China Are Weak*, (GAO/NSIAD–95–82, Apr. 1995) we noted that the export licensing process and monitoring controls for missile technology and dual-use export applications for China cannot ensure that such U.S. exports to China are kept from sensitive end-users. Only controls for satellite-related

exports to China seem sufficient to reduce risk to a minimum. Our work also indicated that the U.S. end-use check program to monitor license conditions is only marginally effective for exports to China. Department of Defense officials are concerned that Commerce might not be identifying and seeking interagency concurrence on all the missile technology-related export license applications for China. We also point out that available information on sensitive end users in China is not always shared efficiently or routinely between the intelligence and licensing communities. Further, there is no central database on sensitive end users of missile-related technology. However, several organizations maintain or plan to create databases containing such information.

Senator SMITH. Mr. Cooper, are you aware why the Department of Defense would be unable to deny a license for export of small engine technology to entities associated with the development of China's cruise missile program?

Mr. COOPER. We understand that the small engines you refer to are under licensing jurisdiction of the Commerce Department. We have not examined this particular case, but the Department of Defense does not have authority to deny Commerce licenses. Rather, Defense could recommend denial of this type of license to Commerce. In addition, under the Export Administration Regulations, Commerce could approve the license over Defense objections. However, if Defense believed it was necessary, Defense could escalate the case to the President for a final determination.

Senator SMITH. Mr. Davis, how is the ability to stem the proliferation of weapons of mass destruction and advanced conventional weapons affected by reducing controls on supercomputers?

Dr. DAVIS. Section 309 (c) of the Nuclear Nonproliferation Act of 1978 directs the Department of Commerce to control exports of all items "which could be, if used for purposes other than those for which the export is intended, of significance for nuclear explosive purposes." Advanced computers clearly can be "of significance" for designing and testing nuclear weapons and delivery systems. Computers, however, arguably pose the most significant challenge to U.S. export control laws and regulations. Rapid advances in computer technology here and abroad provide the best example of how increasing availability can reduce the effectiveness of U.S. controls. To meet this challenge, U.S. controls are adjusted to keep pace with advances in technology. The complaint of the computer industry has been that these adjustments have not been fast enough or extensive enough. However, in 1993, the Clinton administration lifted controls on supercomputers (up to 500 million calculations per second—after U.S. allies opposed a proposal for even higher levels of decontrol). As a result, only a small number of the most sophisticated computers require any export license at all.

In view of these sweeping decontrols, claims that the remaining licensing requirements for the most advanced supercomputer exports unnecessarily harm U.S. companies are unconvincing. In fact, recent reports by the Inspectors General of the Departments of Defense, Energy, State, and Commerce and the General Accounting Office show that U.S. controls actually block only a minute fraction of the most sensitive dual-use exports—even to countries suspected of having covert nuclear weapons programs.

Senator SMITH. Mr. Davis, how do the administration's efforts to reduce export controls on dual-use technologies fit with the administration's stated policy of preventing the proliferation of weapons of mass destruction?

Dr. DAVIS. There is tension between these two objectives, because wider availability of dual-use equipment increases the risk that such equipment will be used in the development of weapons of mass destruction. Movement toward a new concept of security which gives a higher priority to the global competitiveness of U.S. companies in relation to traditional definitions of national security cannot be achieved without some increased proliferation risk.

Senator SMITH. Mr. Davis, the administration's nonproliferation and export policy announced in September 1993 stated that it would attempt to solve proliferation by maintaining some controls targeted on selected, known proliferators or "rogue nations," while easing controls for countries that agree to adhere to nonproliferation norms. Is it possible for countries to violate their agreements and skirt the edges of commitments to adhere to "norms"? Can you give examples?

Dr. DAVIS. Multilateral agreements to adhere to nonproliferation export control norms are gentleman's agreements made among loosely organized groups of countries. These groups—the Nuclear Suppliers Group (NSG), the Australia Group, the Missile Technology Control Regime (MTCR), and the COCOM replacement—are called regimes. The agreements are unverified pledges not to sell certain items to certain countries. These non-binding agreements depend on each country's national control system for implementation. However, there is often disagreement within the groups on:

(1) the items to be restricted;
(2) which countries should be included as members of the regime, and which should be included in the special category of adherent;
(3) which countries should be labeled as "rogue nations" and denied access to the controlled exports; and
(4) what should be done when members violate their pledges.

These disagreements have led to cases of inconsistent implementation by the members and the adherents.

There are numerous examples of violations of regime commitments. Iraq's ability to purchase vast quantities of controlled dual-use equipment from regime members to build nuclear, chemical, biological weapons, and missiles is well-documented. More recent examples of countries skirting the edges of their commitments include Russia's sale of nuclear reactors to Iran (members of the Nuclear Suppliers Group agree not to undercut other members' decisions to deny exports), Russia's sale of missile technology to India (Russia agreed to adhere to the MTCR, but sold controlled rocket technology anyway), China's sales of missiles and missile technology to Pakistan (China agreed to adhere to the MTCR), and China's nuclear assistance to Pakistan (Members of the NPT are not allowed to assist "in any way" nuclear weapons programs in non-nuclear weapons states).

When a member of a regime breaks its pledge, there is little recourse for other members except to express dissatisfaction on a bilateral basis. Such dissatisfaction often takes the form of diplomatic demarches or complaints, but can include sanctions.

Senator SMITH. Mr. Davis, do you believe the administration's strategy of using access to high-technology, dual-use goods as an incentive to bring countries into the community of nations is working?

Dr. DAVIS. It is extremely difficult to predict what measures are most likely to persuade a country to abandon its WMD and join the community of nations. Argentina, Brazil, and South Africa are often cited as examples of developing countries that abandoned WMD and joined the community of nations. While it is true that these three countries probably were partially motivated by a desire to develop their economies, it is not at all clear that access to high-technology, dual-use goods was important to their decisions to give up WMD. Other factors, such as the absence of external security threats, the high costs of maintaining WMD arsenals, domestic politics, and the broad economic and political consequences of possessing WMD probably weighed more heavily in their decisions.

This approach failed to bring Saddam Hussein into the community of nations, and may not be working with respect to Russia, China, India, and others. These countries can be expected to use access to sensitive technology to advance their own military capabilities. They may also re-export the technology to countries that have been denied by other suppliers. The loose nature of regime commitments and obligations makes it difficult to monitor or enforce pledges to adhere to regime guidelines. Recent General Accounting Office and Inspectors General reports found that government-to-government assurances regarding the uses of sensitive technology were not verified, and that end-use checks were normally conducted by foreign nationals. Once access to high-technology is granted, it is extremely difficult to verify how that technology is being used.

Senator SMITH. Mr. Davis, what do you believe are legitimate criteria for deciding what technology to export—national security, economics, foreign policy, or foreign availability?

Dr. DAVIS. National security has long been the decisive factor for U.S. exports of nuclear technology. The Atomic Energy Act of 1954 established strict guidelines for nuclear cooperation with foreign countries. For dual-use items, section 309 (c) of the Nuclear Nonproliferation Act of 1978 directs the Department of Commerce to control exports of all items "which could be, if used for purposes other than those for which the export is intended, of significance for nuclear explosive purposes." National security is also a decisive factor under the Export Administration Act, which established the current system of controls for most dual-use technology and the Arms Export Control Act. These laws direct the executive branch to establish regulations and procedures to protect the national security of the United States through evaluation of license applications for militarily sensitive exports. The Export Administration Regulations (section 778.4) establish criteria to guide the licensing of sensitive items. Recent GAO and IG reports questioned whether these criteria were being applied to all sensitive export license applications.

Foreign policy, economics, and foreign availability are legitimate criteria for deciding what technology to export, but none of those factors should override national security. Efforts to give greater priority to factors other than national security may

succeed at the expense of national security. Such a reduction could be viewed as inconsistent with nonproliferation policy and could result in new threats to U.S. security.

Senator SMITH. Mr. Davis, has a consensus developed among former COCOM members and new members to control exports that could lead to proliferation of weapons of mass destruction?

Dr. DAVIS. Consensus has developed among former COCOM members and new members that the proposed new organization will not function like COCOM. Members will not be able to veto exports of other members, nor will all exports be reported to the new organization. The replacement organization will apparently include Russia. Membership in the new organization is to be founded on three principles: (1) adherence to norms of nonproliferation; (2) not selling arms or dangerous dual-use technologies to countries of proliferation concern; (3) maintaining reliable export controls.

Russia's sales of conventional weapons and nuclear technology to Iran and persistent evidence of nuclear smuggling call into question Russia's ability to uphold its commitments under the new regime. (A recent CRS report on this subject is enclosed.) [CRS report retained in committee files.] In light of these problems, the new organization's unverified and unenforced guidelines serve more as a confidence building measure than as a formal commitment.

Senator SMITH. Mr. Davis, are you aware of any instances where export controls have been increased as a result of the administration's review of export controls for national security reasons?

Dr. DAVIS. The Nuclear Suppliers Group added items to its list of controlled technology at its April 1995 meeting.

Senator SMITH. Mr. Davis, do you believe the U.S. Government should send a signal to China that it will not condone China's diverting of U.S. technology for military uses or its assistance to rogue nations in their proliferation efforts by stopping exports of U.S. technology to China?

Dr. DAVIS. Technology acquisition is a fundamental part of China's strategy to develop its military and civilian sectors. Access to U.S. and other countries' advanced technology enables China to make rapid advances by employing the benefits of Western research and development, but without having to make similar investments of time and resources. In essence, China is able to piggyback on the achievements of others. At the same time, China is becoming a major supplier of nuclear, chemical, and missile technology. If China does not control its exports of this technology, U.S. and international nonproliferation efforts would be undermined.

In the past several years, U.S. sanctions targeted on specific Chinese enterprises in response to specific violations of Beijing's promise to adhere to the Missile Technology Control Regime (MTCR) guidelines have preceded changes in China's nonproliferation policy. Sanctions imposed under U.S. nonproliferation laws have denied China access to nuclear and missile technology it seeks. Although China's declared policy has not always been consistent with its actual behavior, there has been some progress. However, threats to break off trade through the denial of most-favored-nation trade status (MFN) have not been effective in changing China's nonproliferation policy. This may be due to the linking of multiple issues—human rights, intellectual property, nonproliferation, and other issues—with the granting of MFN. Targeted sanctions can link specific actions with specific consequences, thus making it possible to lift (and reimpose) nonproliferation sanctions in response to changes in Chinese proliferation behavior.

Senator SMITH. Mr. Davis, how agile are our export control processes for reacting against emerging threats involving technology applications in categories other than weapons of mass destruction?

Dr. DAVIS. Downsizing the export control system through reduced licensing requirements and a streamlined inter-agency review process reduces the scrutiny given to the possible uses of sensitive technology for advanced conventional weapons or terrorism, as well as WMD. Since one of the main purposes of export controls is to monitor procurement patterns to detect build-ups of WMD and conventional capabilities, lowering of export controls can be expected to diminish this monitoring capability. Eliminating this intelligence function of export controls may result in surprises regarding emerging threats.

QUESTIONS SUBMITTED BY SENATOR JEFF BINGAMAN

STATE INSPECTOR GENERAL REPORT

Senator BINGAMAN. Dr. Wallerstein, Senator McCain and I received a report earlier this year from the State Department's Inspector General. The report dealt with how State handles missile technology licenses pursuant to Title XVII of the Fiscal Year 1991 National Defense Authorization Act. The report found that State does not refer all missile licenses to Defense as called for in the Act.

The Inspector General recommended that the State Department "modify its written agreement with the Department of Defense to fully include all of the types and categories that the Department of Defense believes should be given prior blanket approval. Unless covered in the agreement, licenses should be referred to the Department of Defense."

Are you getting to see all of State's missile technology licenses today and has the April 1994 agreement with State been updated as recommended by the State IG?

Dr. WALLERSTEIN. State and Defense are currently reviewing the referral process for missile technology related licenses. Pending the outcome of this review, the April 1994 agreement with State will be updated.

Senator BINGAMAN. Dr. Wallerstein, the report also recommended that State, in consultation with Defense and Commerce, develop a classified list of "countries of concern" regarding missile proliferation, explicitly for the purposes of the missile law. Has that been done?

Dr. WALLERSTEIN. State has been developing such a list in cooperation with the intelligence community and has begun to discuss it with the Department of Defense as well as other departments.

IDENTITY OF SPACE LAUNCH VEHICLES AND MISSILES

Senator BINGAMAN. Dr. Wallerstein, one of the issues that I understand came up in Moscow was the Russian use of SS–25 ballistic missiles as space launch vehicles and how such SS–25s should be accounted for under START.

As you know, Senator McCain, Senator Glenn, and I have long argued that new members in the Missile Technology Control Regime should give up their ballistic missile and space launch vehicle programs (with the exception of the Russians and Chinese). What is our current policy on proliferation of space launch vehicles and on whether a nation pursuing a so-called peaceful space launch vehicle program should be allowed entry into the MTCR, where it will potentially get access to technology that would accelerate its SLV program? As you know our concern is that you're going to turn a non-proliferation regime into an avenue for proliferation.

Dr. WALLERSTEIN. The United States as a matter of policy does not encourage new Space Launch Vehicle (SLV) programs. The fact that a nation is pursuing a bonafide civilian space launch program, however, would not in itself preclude U.S. support for membership in the Missile Technology Control Regime, assuming that the country had satisfied both regime and U.S. national criteria for membership.

MISSILE ENGINE TECHNOLOGY SALE TO CHINA

Senator BINGAMAN. Dr. Wallerstein, on February 20 Jack Anderson wrote an article on the sale of engine technology to China. This article caught our staff by surprise because the Department of Defense had assured them last year that while some engines would be sold for a Chinese trainer aircraft program, manufacturing technology with clear relevance to cruise missile engines would not be.

The article cites a Commerce Department official, Ian Baird, as saying that last year the administration lifted controls on this technology. Department of Defense and Arms Control and Disarmament Agency officials have since told our staff that Mr. Baird misspoke and was not speaking for the administration as a whole. My understanding is that this sale is still under review. Can you clarify where this stands and whether the Department's position that this technology is relevant to long-range cruise missiles has changed?

Dr. WALLERSTEIN. Allied Signal Corporation has provided some information to the Government on its proposal to provide limited production technology on the Garrett engine to China. This proposal is still under review by an interagency group including the Department of Defense. The Department of Defense's principal concern is to ensure that this transfer would not contribute to China's long range cruise missile programs as defined by the Missile Technology Control regime.

EXPORT CONTROLS AS PART OF COUNTERPROLIFERATION STRATEGY

Senator BINGAMAN. Dr. Wallerstein, it strikes me that little thought is being given to how the proliferation of dual-use technologies, like these engines, is likely to affect our long-term technological edge. The Revolution in Military Affairs assumes that we alone will be capable of tieing together systems of technologies to achieve dominant battlefield awareness and precisely target foes.

But if we don't have an adequate non-proliferation strategy, including export controls wherever they can be effective, we're going to make our counterproliferation problem much worse.

Is the Pentagon arguing for export controls, as it traditionally has, wherever they can be effective and is the Pentagon taking the lead in urging allies to exercise restraint on exports of dual-use technologies? Or is our policy to give up on most export controls, profit from the sales, and wish our troops well when they come up against problems we and our allies have created for ourselves?

Dr. WALLERSTEIN. The Department of Defense continues to be a strong proponent of effective export controls as a major tool of U.S. national security policy. In this regard, the Department of Defense also continues to press our interagency colleagues and our friends and allies abroad to develop and implement a broad range of multilateral arrangements to control the spread of dangerous goods, services, and technologies. This is an essential part of our commitment to preserve U.S. military technological advantages over any potential adversary or coalition of adversaries.

NEW EXPORT ADMINISTRATION ACT PROPOSAL

Senator BINGAMAN. Dr. Wallerstein, as you know, many of us on this committee and on the Senate Foreign Relations Committee had deep concerns about the administration's February 24, 1994 Export Administration Act reauthorization proposal. We felt it went too far toward decontrol and laissez-faire even in critical areas.

As Senator Smith noted, it even repealed Title XVII of the National Defense Authorization Act for Fiscal Year 1991, the Missile Technology Act of 1990 that Vice President Gore, John McCain and I sponsored, and replaced its category I and II mandatory sanctions, subject to Presidential waiver, with a discretionary menu of sanctions and numerous other changes.

Those successful cases you cited to Senator Smith—rolling back the Russia-India deal for example—were successful because of the mandatory nature of the sanctions under the law.

Can we get your assurance that any new proposal coming from the administration this year to reauthorize the Export Administration Act will show more emphasis on control of sensitive technologies and at a minimum will no longer attempt to repeal Title XVII's missile provisions?

Dr. WALLERSTEIN. Defense agrees that missile technology and other proliferation-related sanctions are important and valuable tools in safeguarding our national security and furthering our foreign policy interests. There is interagency agreement that any administration EAA proposal this year will not include provisions that would repeal existing statutory treatment of sanctions.

COMMERCIAL HIGH-RESOLUTION REMOTE SENSING POLICY

Senator BINGAMAN. Mr. Wilson, you stated that "we have been in discussion with several governments" on imaging satellites. Can you tell me the nature of these negotiation? Is it one of their purposes to ensure these satellites are not used against American deployed forces? Why have the Russians been left out thus far?

Mr. WILSON. These were not negotiations. They were briefings and discussions focusing on PDD/NSC–23 and its provisions relating to issuance of operating licenses to U.S. firms under the Land Remote Sensing Policy Act of 1992. Both the law and the PDD provide for the Secretary of Defense or the Secretary of State to determine whether there is need to limit data, collection, or distribution for reasons of national security or when international obligations of foreign policy may be compromised. The fact that the Secretary of Defense is authorized to determine when U.S. national security interests call for controls on satellite imagery was clearly presented in the discussions.

Thus far, discussions have been with allies who are or may be interested in imagery sharing or procurement of U.S. commercial imagery systems or products. The Russians have not indicated any interest. They have their own capabilities in this area and are viewed as a commercial competitor.

Senator BINGAMAN. Mr. Wilson, can you describe in detail the executive branch interpretation of Section 202(b)(2) of Land Remote Sensing Policy Act of 1992 (15

USC 5622(b)(2)), which states that any license issued pursuant to this subchapter shall specify that the licensee shall comply with all of the requirements of this chapter and shall "make available to the government of any country (including the United States) unenhanced data collected by the system concerning the territory under the jurisdiction of such government as soon as such data are available and on reasonable terms and conditions"?

Mr. WILSON. We consider the statute is clear that whenever a U.S.-licensed firm obtains imagery of the domestic territory of any foreign country, that country will be advised by the firm obtaining the imagery that such imagery exists and is available for purchase if the country so desires.

Senator BINGAMAN. Mr. Wilson, you seemed to imply that this would not affect say, images of Iran and Iraq taken for Saudi Arabia. Is that because a foreign policy or national security determination has been made that overrides this provision, as permitted by section 202(b)(1) of the Act? If so, please describe in detail all such determinations made thus far? Are all governments currently classified as "terrorist states" by the Department of State going to be denied imagery taken by their neighbors? Are there provisions in the licenses which will deny these terrorist governments and entities controlled by these governments access to images of their neighbors? Have all of the determinations on national security and international obligations been communicated to American licensees?

Mr. WILSON. I am not aware of any policy or determination that overrides Section 202 (b)(2). Section 202 (b)(1) is operationalized in PDD–23 which allows the Secretary of Defense to define national security compromise and, by action of the Secretary of Commerce, limit data collection and/or distribution. Under this provision, collection or dissemination of imagery, even to the primary customers, can be denied for national security reasons. There are no fixed "determinations" beyond those enunciated in PDD–23. License applications and attendant distribution agreements are being treated on a case-by-case basis. No licensed system is yet operational.

Senator BINGAMAN. Mr. Wilson, can you explain in detail what a "significant or substantial agreement with a foreign nation, entity or consortium involving foreign nations or entities" is under current policy? Would it be any contract to supply imagery to a foreign entity? Would this catch any terrorist nation or entity controlled by a terrorist nation? Licensees have been told that such agreements "include, but are not limited to, agreements which would provide for the tasking of the satellite and its sensors, provide for real-time direct access to unenhanced data, or involve high-volume data purchase agreements." The "are not limited to" language implies to me that it might include low-volume data purchases if the entity purchasing the data is one our government wants to block from receiving it (for example, images of South Korean military installations sold to a suspect entity). Is high-volume 1,000 images? 100? 10? Country-dependent?

Mr. WILSON. This question involves matters for which the Secretary of State has full responsibility. The Secretary of Defense becomes involved only when issues of national security are identified.

The U.S. Government may enter into government-to-government agreements with nations purchasing U.S. commercial imagery or imagery distribution systems; such agreements could include a mutual understanding on secondary dissemination. Unclassified imagery, by definition, may be broadly distributed. In our opinion, volume is not a feature of availability; an purchasing entity could make a decision on availability regardless of the rate of images received.

Senator BINGAMAN. Mr. Wilson, current licensees are required "to maintain and make available to the U.S. Government, as requested, a record of all satellite tasking operations for the previous year." This will permit the U.S. Government to see how U.S. commercial satellites are being used. For example, if military sites of a neighboring country are being imaged, we will be able to deduce the satellite is being used for intelligence gathering or arms control verification. Is the U.S. Government going to assign experienced intelligence analysts to passively and routinely monitor the satellite tasking schedule and customer list of U.S. remote-sensing firms? If so, will they be able to obtain the tasking schedule before the pictures are taken or only after they are taken? Will the analysts be able to do their job in near real-time so that the U.S. Government can detect possible preparations for belligerent activity at the earliest possible time?

Mr. WILSON. The Defense Department does not plan to depend on unclassified commercial remote sensing systems "to detect possible preparations for belligerent activity at the earliest possible moment." U.S. intelligence resources are, and will continue to be focused on this problem. Imagery obtained by commercial firms may be able to contribute information, and such will be used by the Department of Defense, but commercial firms are not expected to be key to the warning problem.

U.S. licensed firms do not yet have operational systems. When they do, the intelligence community will develop the necessary monitoring protocols to assure the conditions of the license and national security responsibilities.

Senator BINGAMAN. Mr. Wilson, are any of the U.S. firms applying to the Department of Defense for the use of the military signal (P-code) on the global positioning system (GPS)? If so, does the Department of Defense plan to deny the application? What are the military risks if U.S. high resolution imagery satellites use this signal? Wouldn't this be very useful for targeting weapons systems? What civilian applications would require access to the military GPS signal?

Mr. WILSON. We are not aware of any license applications for use of the military signal (P-code) and no case has been made to justify a commercial need for the military signal.

The U.S. systems thus far licensed to build a satellite system indicate they intend to use GPS primarily to enhance the accuracy with which they can locate the position of their satellite in space.

Any foreign country with military capabilities sufficient to direct a missile against a target in the United States probably would be able to attain acceptable accuracy without depending on a P-code GPS in a satellite imagery system. A location derived by hand-held GPS equipment that can be purchased across the counter would serve the purpose.

Senator BINGAMAN. Mr. Wilson, current licensees must use a data downlink format that allows the U.S. Government access and use of the data during periods when national security, international obligations and/or foreign policies may be compromised, as provided for in the Remote Sensing Policy Act. Are the military services and CINCs satisfied with the licensed U.S. firms specific plans to fulfill this commitment?

Mr. WILSON. The Joint Staff, in coordination with the services, has coordinated on all license applications submitted to date. Licensees know that they must comply with national security provisions of the Act and the the Department of Defense is confident that the national security can be protected.

Senator BINGAMAN. Mr. Wilson, according to Space News, Lockheed has submitted a proposal to Germany for a military photoreconnaisance satellite identical to its commercial satellite. If Germany bought or leased such a satellite, would Germany be subject to the provision mentioned in my second question (section 202(b)(2) of the Land Remote Sensing Policy Act) that requires the imaged state to receive images taken of it? Wouldn't that undermine the intelligence value of the satellite?

Mr. WILSON. Any remote sensing system licensed for export to Germany would come under regulations applicable to material on the U.S. Munitions List (for which State Department is responsible) and not the Land Remote Sensing Policy Act of 1992. Sec. 202 (b)(2) of this act applies only to licenses issued to U.S. firms for operating systems that would sell imagery products. Ownership of the system is United States with foreign investor ownership limited to no more than 25 percent.

The cited Sec. 202 (b)(2) does not require the "imaged state to receive images taken of it". The only requirement is that the imaged state be advised that the imagery has been obtained and is available for purchase.

Senator BINGAMAN. Mr. Wilson, does the Lockheed proposal offer Germany a regional or global imaging capability? If it is a global capability, would such a sale undermine future U.S. efforts to prevent other states from making similar sales to potential adversaries?

Mr. WILSON. The Defense Department has not officially seen any formal Lockheed proposal to Germany. We are not aware of any U.S. Government effort to prevent the sale of imaging systems by other countries. In the event that such a sale would present a threat to U.S. national security, the U.S. Government may seek diplomatic or trade actions to influence the transaction.

Senator BINGAMAN. Mr. Wilson, would the U.S. Government be able to monitor the German tasking schedule in near real-time?

Mr. WILSON. What restrictions would apply to the sale of a U.S.-built remote sensing system have not yet been determined by the State Department, which is responsible for export licenses for material on the Munitions List (including space systems).

The Defense Department has no present plans to raise near-real-time monitoring of a German tasking schedule as an issue. Germany has been a staunch military ally in NATO for 40 years, and if it were viewed as a threat to U.S. national security, an export license would not be issued.

Senator BINGAMAN. Mr. Wilson, does the Department of Defense have a position on S. 625, which was reported by the Senate Commerce Committee on May 15 and is currently on the Senate's calendar? Is the Department of Defense concerned about the change in section 507(a) of the 1992 Act dealing with the Responsibility of the

Secretary of Defense? How would the 60-day limit proposed affect the Secretary's ability to carry out his responsibility to ensure the national security?

Mr. WILSON. The only change that S. 625 would pose to responsibilities the Secretary of Defense now has under the Land Remote Sensing Policy Act of 1992 is that a 60-day limit would be imposed on submission of Department of Defense comments on national security aspects of a license application. Currently, a 120-day limit is put in the elapsed time between a Government determination that the application is complete and a final yes/no decision concerning approval of the license.

The Department of Defense would prefer no change in the current time limits, but posed no objection to S. 625.

The only change offered by the Department of Defense was that the last sentence of the proposed Sec. 507 be amended to read:

"If no recommendation has been received by the Secretary within such 60-day period, *and the Secretary of Defense has not advised the Secretary that additional time is required*, the Secretary may deem activities proposed in the license application to be consistent with the protection of the national security of the United States."

QUESTIONS SUBMITTED BY SENATOR JOHN GLENN

DOD NON-COMPLIANCE WITH REPORTING REQUIREMENT

Senator GLENN. Dr. Wallerstein, the Defense Department has repeatedly failed to comply with several statutory requirements (including two that I have authored) for a single report on the Department of Defense's personnel resources for implementing export controls and nonproliferation responsibilities. The Department is now a year late in satisfying the most recent requirement, in sec. 1154 of the NDAA for fiscal year 1994.

Why has the Department failed to submit the required reports?

Dr. WALLERSTEIN. Delay was caused by the need to develop Department of Defense-wide estimate of the data requested. The data called for by Section 1154 is not compiled by the Department of Defense for budget or other purposes because personnel performing export control functions generally do not work exclusively on nuclear, chemical or biological matters and some also perform nonexport control functions.

Senator GLENN. Dr. Wallerstein, on February 7, 1995, you stated in a letter to me that the report "has not been completed. When completed a copy will be forwarded to your office"—when do you intend to submit this report?

Dr. WALLERSTEIN. We will be forwarding the report by the end of July, 1995.

DOD EXPORT CONTROL RESOURCES

Senator GLENN. Dr. Wallerstein, an interagency Counterproliferation Report submitted to Congress in May 1994 by the Deputy Secretary of Defense cited "Support for Export Control Programs" as among those nonproliferation functions that have the "Highest Priority Shortfalls in Operational Capability".

Were the Department of Defense's export control capabilities included in the scope of this study?

Dr. WALLERSTEIN. No.

Senator GLENN. Dr. Wallerstein, given your testimony today that the Department of Defense "believes that export controls continue to be a very important tool of national security policy," that such controls "play a central role" in the prevention of proliferation, and that the department is "giving strong emphasis" to preventing weapons proliferation—is the finding cited above valid today with respect to the Department of Defense? Which specific export control shortfalls have persisted at the Department of Defense since the submission of that report?

Dr. WALLERSTEIN. We continue to believe that resources currently programmed are adequate to perform the Department of Defense's export control responsibilities.

ECONOMICS VERSUS SECURITY AS LICENSING CRITERIA

Senator GLENN. Dr. Wallerstein, in a letter dated February 7, 1995, containing replies to some questions I had posed at another hearing, you stated that "the (current) statutory requirements on foreign availability do not apply to dual-use items controlled for foreign policy, e.g., items of proliferation concern".

Did the EAA bill introduced by the Administration in the last Congress continue this practice, or would it have established foreign availability as an authorized basis for the Secretary of Commerce to decontrol items of proliferation concern?

Dr. WALLERSTEIN. That bill provides specifically that a Commerce determination of foreign availability does not require the U.S. Government to decontrol an item subject to control by a multilateral regime to which we belong. The bill also authorizes the President to determine whether that the granting of *any* relief—including decontrol—would create a significant risk to U.S. nonproliferation, foreign policy or national security interests, and that therefore no relief should be granted.

Senator GLENN. Dr. Wallerstein, did that bill require the concurrence or approval of any other official, department, or agency, before the Secretary of Commerce could determine that exporters are eligible for "relief from export controls" upon evidence of foreign availability, even for items controlled for nonproliferation reasons?

Dr. WALLERSTEIN. The bill required consultation with appropriate departments and agencies, including the Department of Defense, as does current law. I would like to point out that there is interagency agreement on the principle of equal partnership in export control-related decisionmaking, including the area of exporter relief.

Senator GLENN. Dr. Wallerstein, why did the administration's EAA bill in the last Congress authorize the Secretary of Commerce to be the judge as to whether the granting of "relief" from export controls to an exporter would create "a significant risk" to U.S. nonproliferation or national security interests? What resources does Commerce have to make such judgments relative to those available to Defense?

Dr. WALLERSTEIN. The administration bill continues the framework of current law in which Commerce is the primary administering agency for dual-use export controls; as such, it is the licensing agency and the grantor of relief from export controls. The decisionmaking process relies heavily on Defense Department analysis and judgments precisely for the reasons you have stated—because these are matters that touch on national security and nonproliferation concerns.

Senator GLENN. Dr. Wallerstein, will the new EAA bill that the administration is preparing to submit subject proliferation-controlled dual-use items to any criterion of foreign availability?

Dr. WALLERSTEIN. There is no interagency agreement to change the language in the administration's bill relating to foreign availability.

Senator GLENN. Dr. Wallerstein, given the U.S. obligation (now permanent) under Article I of the NPT "not in any way" to assist any non-nuclear-weapon states to acquire nuclear explosive devices (an obligation echoed in the BWC and CWC with respect to CBWs), of what relevance is "foreign availability" in determining whether or not America is complying with these specific treaty obligations?

Dr. WALLERSTEIN. Article I of the NPT states that the United States (as a nuclear-weapon state) may "not in any way . . . assist . . . any non-nuclear-weapon state to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices . . ." The United States takes this treaty obligation extremely seriously. Because of the nature of dual-use items, such items may be exported as long as they meet certain export criteria, for example, they are not to be used in a nuclear weapons program. Where dual-use nuclear-related items are being considered for export, foreign availability can be important in order to determine whether the proposed recipient country could get the item elsewhere. Likewise, where the United States is objecting to the export of a dual-use nuclear-related item because of proliferation concerns, knowledge of foreign availability can allow us to demarche other governments to ensure they also do not export the item.

Senator GLENN. Dr. Wallerstein, the Nuclear Suppliers Group announced in April 1992 some new guidelines for transfers of nuclear dual-use items, including a list of "relevant factors" to be used by export licensing officials. Are "foreign availability" or economic competitiveness—two criteria emphasized heavily in your testimony—among these factors?

Dr. WALLERSTEIN. Foreign availability and economic competitiveness are not among the "relevant factors" listed by the NSG. The NSG licensing procedures consider "relevant factors" to include: whether the country is a party to the NPT or Treaty of Tlateloco, facility safeguards, equipment end-use, and the utility of the equipment for enrichment or reprocessing operations. Other "relevant factors" include: whether the importing government supports non-proliferation norms, whether it has engaged in clandestine nuclear activities, or whether the designated end-user has a record of supporting clandestine nuclear activities.

Senator GLENN. Dr. Wallerstein, given that these guidelines require suppliers not to authorize transfers of controlled items for use in any non-nuclear-weapon state in any nuclear explosive activity or any unsafeguarded nuclear fuel cycle activity, why did your testimony focus on stopping transfers of sensitive items going or diverted only to "potential adversaries or combatants"? What is the Department of Defense doing to block exports that could be used in such activities elsewhere?

Dr. WALLERSTEIN. The Department of Defense does not discriminate in its support for NSG controls based on the potential for the country to be an adversary or combatant of the United States. The Department of Defense considers the same relevant factors as defined by the NSG in internal U.S. discussions regarding exports. Of course, from a military perspective, the Department of Defense must be acutely aware of nuclear-related imports by adversarial countries, so we can be prepared for all contingencies in times of conflict.

Senator GLENN. Dr. Wallerstein, what are the proliferation and national security implications of nuclear dual-use goods being used in proscribed nuclear activities in countries other than U.S. adversaries or combatants?

Dr. WALLERSTEIN. The national security implications of proscribed use of nuclear dual-use goods are only partly influenced by whether the countries involved are U.S. adversaries or combatants. For example, in times of conflict, the Department of Defense will be even more vigilant over proscribed nuclear activities in such countries. However, in general, the United States and the Department of Defense commitment to nuclear non-proliferation norms dictates that the Department of Defense be concerned about all proscribed uses, regardless of combatant status.

Senator GLENN. Dr. Wallerstein, you testified that increased foreign availability of controlled goods "requires that we be careful not to put U.S. exporters at an unnecessary competitive disadvantage" in selling such goods regardless of the foreign availability of such goods, do you believe that it would be consistent with U.S. treaty obligations and national security interests for U.S. firms to be competitive in the export of goods needed by other countries to make weapons of mass destruction or their delivery systems?

Dr. WALLERSTEIN. The Department of Defense supports U.S. treaty obligations and national security interests behind the control of goods for weapons of mass destruction and their delivery systems. It would be inconsistent to violate these commitments for a competitive advantage. However, there can be occasions when goods can no longer be effectively controlled due to factors such as the global advance of available technology. In these circumstances, the Department of Defense may also consider the effects of unilateral U.S. controls on dual-use goods in whether to continue to insist on maintaining controls. If foreign goods were contributing to weapons of mass destruction, we would work with our partners in the non-proliferation export control regimes to get foreign suppliers to curtail their exports rather than encouraging U.S. exporters to become more competitive with foreign suppliers of sensitive items.

Senator GLENN. Dr. Wallerstein, if any of the countries that you have designated as "pariah states"—or any other state—continues to make sensitive weapon-related goods readily available on the world market, do you believe that U.S. firms that produce such goods should be free to compete for the same market?

Dr. WALLERSTEIN. I do not believe that U.S. firms should compete for the markets being supplied by "pariah states". In general, the participants in the non-proliferation regimes embargo sensitive technology to bad end-users and also, agree not to undercut each other's export denials. Unfortunately, some of the suppliers of last resort are themselves the pariah states. The Department of Defense does not believe that the United States should export sensitive WMD-related goods on the world market, even if these goods become readily available by sales from "pariah" or other states. The Department of Defense stands by the U.S. commitments to non-proliferation and would back efforts to restrict such sales.

POST-COCOM REGIME

Senator GLENN. Dr. Wallerstein, the recent U.S./Russian summit may open the way for Russian participation in the post-COCOM regime.

You testified that this regime will "promote greater responsibility" in the transfer of sensitive dual-use technologies to India, Pakistan, and to countries in the Middle East—what is the relationship between these controls and the dual-use controls already covered by the NSG, Australia Group, and MTCR regimes?

Dr. WALLERSTEIN. These regimes are intended to complement and supplement one another, and avoid unnecessary overlap. In particular, the post-COCOM regime is designed to cover transfers of potentially destabilizing conventional weapons and sensitive dual-use goods technologies to countries and regions of concern that are not necessarily covered by the other nonproliferation regimes.

Senator GLENN. Dr. Wallerstein, will this post-COCOM regime give its members easier access to the goods and technologies controlled by that regime, and if so, how?

Dr. WALLERSTEIN. For existing members of COCOM and COCOM cooperating nations, the current situation will not change. For new members, several factors—in-

cluding the effectiveness of their export controls systems—will determine the degree of access.

Senator GLENN. Dr. Wallerstein, will these members be legally bound by the terms of this new regime, and if not, on what grounds should membership in such a regime enable a country to obtain easier access to sensitive goods and technology?

Dr. WALLERSTEIN. Although—like COCOM—the post-COCOM regime will not be a formal international treaty, commitments will be undertaken at the very highest levels of participating nation governments. Access to sensitive goods and technologies will depend not only on their commitments, but also on the degree to which new members fulfill their obligations.

Senator GLENN. Dr. Wallerstein, you testified that the Department of Defense has been "pressing hard" for a post-COCOM regime that involves "a serious information exchange"—will members of this regime exchange data on export license approvals, or on dual-use goods approved for export without licenses? Will the public ever see any of this data?

Dr. WALLERSTEIN. Negotiations regarding the exact modalities of the new regime are ongoing. In the various working groups and higher-level fora, the United States continues to strongly advocate a robust information exchange for both arms and dual-use items. It is unclear at this point, whether and to what extent data will be made public, particularly given the proprietary and sensitive nature of the information.

Senator GLENN. Dr. Wallerstein, is the purpose of this regime to prevent the acquisition of weapons of mass destruction by certain "countries of concern," or by any country, and if the former, how does this regime relate to the prohibitions in the NPT, CWC, and BWC?

Dr. WALLERSTEIN. The purpose of the new regime is to establish a common framework for member nations to control the transfer of conventional arms and sensitive dual-use technologies as well as to complement other regimes whose principal purposes are to prevent the proliferation of weapons of mass destruction and their means of delivery. In this latter context, the new regime will complement versus duplicate or replace existing international regimes that control WMD.

TECHNOLOGY INDEXING

Senator GLENN. Dr. Wallerstein, you have testified that the "end of the Cold War" and the "increasing pace of technological change and the growing diffusion of technology" are circumstances that "have required that we reorient our export controls, particularly on dual-use technologies" Does the Department of Defense support the decontrol of goods and technology that are not state-of-the-art in making weapons of mass destruction?

Dr. WALLERSTEIN. Definitely not, but with technology for crude nuclear devices and ballistic missiles 50 years old, we cannot hope to control the technology unilaterally. The Department of Defense has a strategic interest in the success of the nonproliferation suppliers regimes that control multilaterally the spread of dual-use technology for WMD.

Senator GLENN. Dr. Wallerstein, aside from the familiar case of Iraq's calutrons, can you provide some examples of how obsolete goods and technology have materially assisted countries to acquire or to manufacture weapons of mass destruction?

Dr. WALLERSTEIN. The situations we are familiar with involve not so much "obsolete" technology as much as dual-use technology. Chemical weapons are a case in point. Facilities that make phosphorous-based pesticides easily can be diverted to lethal chemical manufacture. For biological weaponry, the diversion is even simpler. Equipment used not only in the pharmaceutical industry, but also equipment used in the food industry such as fermenters and freeze dryers, can be diverted to weapons programs.

Senator GLENN. Dr. Wallerstein, over the last 5 years, has the United States raised the technical control parameters for any of the dual-use items controlled pursuant to the NSG, Australia Group, or MTCR regimes, and if so, for which items? Have any been lowered?

Dr. WALLERSTEIN. It is often a challenge to get a committee of 20-plus countries to agree on a technical specification for a given missile, chemical, or nuclear item. Once the multilaterally agreed specifications are set, they remain in force unless a significant problem is identified with the original specification. For example, the MTCR required control of "small fuel-efficient engines" to thwart cruise missile programs. When it was clear that some exports were being made that concerned us, we led the initiative to modify the index with a specific thrust and fuel consumption specification. Similarly, we led the initiative to have a new control parameter added to the MTCR—control of missiles of ANY range and payload if they are specifically

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designed to deliver WMD. In the Australia Group, we got a control parameter to control items that contain a CW precursor in small amounts. Similar technical changes have been made in the Nuclear Suppliers Group. This ongoing review process allows the technical specialists to continuously upgrade the effectiveness of the regimes as real-world implementation issues occur.

Senator GLENN. Dr. Wallerstein, aside from using the "knows" rule (which places the control responsibility on exporters themselves), how does our government ensure that less-sensitive items are not assisting any country to make WMDs?

Dr. WALLERSTEIN. If we learn an item is making a material contribution to a project of concern, we can inform the exporter; and then he "knows" and is required to obtain an individual validated license to export.

Senator GLENN. Dr. Wallerstein, you testified that export controls over many high-powered computers that were until recently controlled for nuclear nonproliferation reasons were "obsolete"—can such decontrolled computers now be exported to facilities in countries that are making or designing WMDs? If such computers are not even licensed and are not subject to any reexport controls, how would you even know if they are destined to such locations?

Dr. WALLERSTEIN. Under U.S. safety net regulations, decontrolled computers may not be exported to end-users engaged in WMD programs in proliferant countries. Exporters are expected to know their customers and are required to submit license applications if they know or are informed that there is a risk of diversion of the exported item to a WMD project.

DEPARTMENT OF DEFENSE'S EXPORT CONTROL MISSION

Senator GLENN. Dr. Wallerstein, you testified that your office works with other agencies to ensure that the increased use of dual-use technologies "does not weaken our military posture". Is the Department of Defense's role in the export licensing process limited to assessing the implications of exports for the U.S. military posture, or does it include the mission of seeking to delay or roll back WMD programs independent of the specific military threat they may pose to the United States?

Dr. WALLERSTEIN. The Department of Defense's primary interest is in assessing the impact of exports on U.S. military capability, force structure, and overall national security interests (review of exports of stealth-related technology, for example). However, contributions to WMD programs that are not a direct threat to U.S. forces is also a major concern. These programs contribute to regional instability and the diffusion of dangerous technology through various alliances and networks. The Department of Defense supports efforts to delay WMD programs by constraining exports or rolling back programs through our participation in various non-proliferation regimes and support for diplomatic initiatives led by the State Department.

Senator GLENN. Dr. Wallerstein, CIA Director James Woolsey testified in 1993 that he could "think of no example where the introduction Of nuclear weapons into a region has enhanced that region's security or benefited the security interests of the United States"—do you agree, and if so, how is this belief reflected in day-to-day export licensing activities at the Department of Defense?

Dr. WALLERSTEIN. I agree with that statement. As for our day-to-day export licensing activities, we are guided by the appropriate legislation and multilateral agreements that control the specific nuclear use and dual-use items that might enhance the introduction of nuclear weapons into a region.

Senator GLENN. Dr. Wallerstein, does the Department of Defense's export licensing mission also include efforts to control sales of goods or technologies that would enhance the ability of other countries—including our friends—to compete against the United States in commercial sales of military or dual-use commodities?

Dr. WALLERSTEIN. The Department of Defense's role in export licensing is intended to advance U.S. national security and foreign policy interests. As part of that mission, the Department of Defense takes into account the impact of these exports on the defense industrial base, to include maintaining U.S. military-technological leadership.

Senator GLENN. Dr. Wallerstein, are data in license applications useful in helping the Department of Defense analysts to evaluate the world market for commodities that could help in making bombs? Given that the number of processed licenses has been steadily dropping in recent years, is the data we receive from post-export intelligence collection, shippers' export declarations, and limited sharing of data between regime members adequate to make up (either in content or in timeliness) for the data the United States no longer obtains from export license applications?

Dr. WALLERSTEIN. According to long-established interagency procedures, Commerce refers export requests of nuclear concern to the Department of Energy and its laboratories for evaluation. In rare circumstances where the Department of En-

ergy feels there is a policy concern, the Department of Energy refers the licenses to the interagency forum where the Department of Defense analysts have a chance to review them.

The Department of Defense analysts do not have the mandate or available data to "evaluate the world market for commodities that could help in making bombs."

Senator GLENN. Dr. Wallerstein, are you confident that U.S.-origin goods, services, and technology are not now being used by other countries to "counter" our counter proliferation efforts? Has U.S. missile defense technology, or any other technology related to the counter proliferation mission, ever been reexported without U.S. consent?

Dr. WALLERSTEIN. In respect to the first part of the question, it should be noted that not all goods are controlled. There can never be an absolute surety that goods or technologies harmful to U.S. military capabilities have not reached countries of concern. Intelligence and law enforcement efforts are aimed at preventing and countering illegal efforts to obtain U.S.-origin goods, services and technology that might be of military benefit to other nations.

[Whereupon, at 11:11 a.m., the committee was adjourned.]

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ISBN 0-16-052208-0